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Idle Mills of Quebec Co. Under Discussion

Two Groundwood Pulp Mills Idle Since 1930 Are Subject of Discrimination Charges—Consolidated Paper Corp. Issues Report on Production—Canadian Technical Division Will Meet June 10.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 3, 1943—Some discussion has taken place in the Quebec Legislature over the fact that the mills of the Quebec Pulp and Paper Corporation remain idle although efforts have been made to have them reopened. The company owns two mills at Chicoutimi, P. Q., with a rated capacity of 350 short tons of groundwood per day. The mills were closed down in October, 1930, owing to the unfavorable market for groundwood at that time, and have remained idle ever since, except for the machine shop, which has been engaged on war work. Last October the company was placed in bankruptcy by the Quebec Streams Commission, a provincial government body, the action being based on the fact that the corporation owed some $1,824,000 to the Commission as dues on the storage dam at Lake Kenogami. It has been reported from time to time that efforts were being made to dispose of the mills to new interests, or alternately to induce new capital to come in and permit resumption of operations. Nothing has come of these efforts and annual losses of around a quarter of a million dollars were reported, mainly resulting from fixed and standing charges. By the end of 1942 the accumulated deficit was well in excess of $45,000,000.

Pro and Con of Discrimination Charges

In the Legislature last week Maurice Duplessis, leader of the Opposition, charged that the company had been discriminated against so that the power it used might be transferred to the mills of Price Brothers and Company, and that the government had acted in other ways to harm the interests of the shareholders.

Replying to these charges, Hon. Wilfrid Hamel, Minister of Lands and Forests, said that the government would endeavor to do all possible to guide the affairs of the Quebec Pulp and Paper Corporation in such manner as to safeguard the interests of those who had invested their money, and above all to safeguard the interests of the Chicoutimi community and the province generally. The question was a vexed one, said the minister and it would be much better had the matter not been brought before the House, in view of negotiations now going on. The government had received offers to take over the mills, but had not wanted them to go to big interests, and as a matter of fact was now in negotiation with a personal friend of the Opposition leader who if he took over the mills would make a success of them. On Mr. Duplessis' insistence, Mr. Hamel said he meant Herve Baribeau, whom he describes as one of the ablest French-Canadian business men.

Labor Dispute at Price Bros. Mills

On Order-in-Council Mr. Justice J. A. Prevost of the Court of King's Bench, Quebec, Mr. Justice Stuart McDougall, of the same court, Montreal, and Mr. Justice Garon Pratte, of the Superior Court, Quebec, have been named the members of the Board of Arbitration which will investigate into matters relative to the dispute at Price Brothers, Limited, mills in the Lake St. John region. Jean Pelletier, advocate of Chicoutimi, has been named secretary of the commission.

Operations were disrupted for several weeks by a jurisdictional dispute between unions, and operations were resumed by a temporary agreement. Premier Godbout told members of the Legislature that a public enquiry commission was decided upon, he said, "because I did not want to take upon myself the responsibility of deciding which union was right and which was wrong. I am sure the commission will arrive at a just settlement."

Consolidated Reports on Production

At the annual general meeting of the Consolidated Paper Corporation, held here, the president, L. J. Betnap, said that the newsprint mills of the company operated at 50% of capacity in the first quarter of this year compared with 73% for the corresponding quarter of last year, but the possible relaxation of the power control shipping and other regulations may effect changes for the better. He mentioned that the first quarter last year had been the year's best. Labor shortage, particularly in woods operations, is a continuing problem for all forest industries. He noted that last month the ceiling price of newsprint was increased by $4.00 a ton, but this, he pointed out, only partly compensated for increased costs. It was the

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Promotes Interest in Pulpwood Production

Forestry Division of Consolidated Water Power and Paper Co. Issues Series of Bulletins on Increasing State Forests as Pulpwood Source — Valley Iron Works Increases Its War Production.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 3, 1943—In the interest of building Wisconsin's forests back to a productive pulpwood source, the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., is issuing a series of printed and illustrated bulletins of four pages each, prepared by its forestry department, of which E. B. Hurst is the director.

Bulletin No. 4 was recently placed in the mails to all interested concerns, organizations and individuals, accompanied by a letter from Mr. Hurst explaining the purposes of the series. The first two dealt with fire prevention and the third with selective cutting.

In the new issue, stress is laid on the preservation of young trees of valuable species while logging. It is pointed out that Nature is its own best reforester if man will cooperate.

"Federal and state forestry employees along with woodsmen from private interests are thoughtlessly allowing to be destroyed millions of second growth trees from five to fifteen years old, which Nature's great nurseries have started, protected, and renewed for future imperative needs and pleasures of mankind," says the bulletin. "This tremendous annual loss in forestry assets is wholly caused by lack of appreciation and realization by timber owners and operators that each growing tree in the forest is an individual asset of value to the owner and to Wisconsin.

"Few timber owners or woods operators would think it right or good business policy to cut down and exterminate young seedlings planted by man from man-made nurseries. But continually throughout Northern Wisconsin woodsmen are destroying, no doubt, thoughtlessly—vast numbers of Nature's youthful trees—far more valuable than the seedlings planted by hand—for upon its young trees Nature has lavished its soil, its rain and its sunshine in unlimited abundance to give Wisconsin in its forests far greater wealth and beauty than otherwise obtainable."

Careless Skidding a Waste Factor

Careless skidding operations during logging are pointed to as a main source of destruction, avoidable by choosing trails that leave the small trees unharmed. Sometimes these are cut through beautiful stands of growing timber. Proper road building will likewise have its conserving effect, the bulletin says, especially where built not wider than necessary. Ruthless cutting also accompanies the building of straight-line fire lanes, whereas they could have occasional curves that will permit them to pass growing timber. Loggers also come within the criticism when they cut too many small trees to make room for axe and saw, especially when taking the attitude of getting the work done as quickly as possible without regard to the presence of replacement timber.

The bulletin features E. J. Vanderwall, director of the Wisconsin Conservation Commission, whose picture appears on the cover. Another picture shows George W. Mead, president of Consolidated since it was started, and examining a young tree which Nature has started and developed. He has been an ardent advocate of reforestation, and his company now has extensive private forest operations.

Valley Iron Works Expands War Production

In its speedup of production, the Valley Iron Works Company, Appleton, Wis., has completed installation of two vast machines, a planer and a borer, and they are now in operation. The company's productive facilities, normally used for paper mill machinery, have "gone to War" and are now devoted entirely to government contracts.

The planer weighs 115 tons, and is capable of planing and smoothing the surfaces of a single piece 23 feet wide, 24 feet long and 6 feet high. A number of smaller parts can be assembled and run through the machine at one time. Mass production of large machine parts therefore is speeded up considerably. It takes 100 hp. to drive the planer. It is being used now to plane beds, columns, cylinders, etc., for 2,750 hp. Corvette Marine engines, some of whose parts weigh 12 to 13 tons.

The boring machine weighs 80 tons, and is capable of boring a hole 6 feet in diameter and 12 feet deep. It has full micrometer control and its versatility is such that after the work has been set up on the table, it can be moved in three different directions to facilitate further operations on the same piece of equipment. Its most spectacular use is in the boring and facing of turbines going into the manufacture of high octane gasoline and artificial rubber.

Both machines produce an accuracy of 1/2000 of an inch. Other retooling for war work is still in progress. The plant is operating 24 hours daily.

Commission Considers Use of Waste Liquor

Possible use of sulphite liquor waste in a compound similar to asphalt for the building and maintenance of highways is under consideration by the Wisconsin Highway Commission at Madison, Wis. It was revealed by the commission in a recent bulletin that its testing laboratories have been collaborating with the Institute of Paper Chemistry at Appleton, Wis., along these lines. Progress had reached the stage some months ago where the Institute planned the construction of a demonstration stretch of highway using the new compound, but its work and investigations were switched into war channels. The Institute is conducting its experiments on behalf of the Wisconsin Sulphite Manufacturers' Committee, with the purpose of finding commercially practical products in the sulphite waste so the pollution of Wisconsin rivers may be eliminated. A pilot plant is under construction at Appleton to test other processes.

Mills Can Use More Waste Paper

Waste paper surpluses resulting from salvage collections for the war effort are about used up, and paper stock dealers are making new appeals for supplies to keep the mills in raw material. Prices have

strengthened considerably, and it is pointed out that collections would be profitable to sponsoring organizations. The Boy Scouts have been the principal source in many localities.

Dealers say that mixed waste paper and newsprint are moving steadily, but that there is a real demand for waste ledger, book and carton stock. Box boards are especially scarce since so much of the packaging material is shipped out of the country to the armed forces and for lend-lease.

Commission Suspends Freight Increases

Intrastate freight rate increases granted to Wisconsin railroads a year ago have been suspended by the Wisconsin Public Service Commission until January 1, 1944. Coal shipments going to paper mills are covered in the new order. The increases were allowed in March, 1942, after the Interstate Commerce Commission had granted similar boosts in interstate rates. The ICC recently suspended its order effective from May 15, 1943 to January 1, 1944, the state commission followed suit to preserve uniformity and prevent discrimination.

Kimberly-Clark Issues Vacation Rules

Under vacation rules announced by Kimberly-Clark Corporation for its mill at Kimberly, Wis., all employees having three years of continuous service will be given one week with pay after the third anniversary of their hiring date. Those having ten years of continuous service will be entitled to two weeks with pay.

Voyta Wrabetz Reappointed

Voyta Wrabetz, chairman of the Wisconsin Industrial Commission, has been reappointed by Governor Walter S. Goodland for a term ending June 30, 1949. The appointment must be confirmed by the Wisconsin Senate. Wrabetz has been with the commission since 1919 when he was hired as an examiner. He has given splendid cooperation to the paper and pulp mills in their industrial safety programs, and his retention is welcomed by the manufacturers.

Honored for Long Service

Jacob Hergert was given a party by fifty of his fellow workers at the Lakeview mill of Kimberly-Clark Corporation, Neenah, Wis., last week in honor of the completion of 25 years of service with the company. He is a beater engineer in the crepe wadding department. M. E. Palmer, mill manager, was among those extending congratulations.

The Bergstrom Paper Company, Neenah, Wis., entertained its employees at a dinner at Valley Inn at Neenah Saturday evening, May 1, in honor of Earl R. Brown, superintendent, who resigned effective May 1. He has been superintendent for 29 years. Prior to joining the Bergstrom organization, he was employed at Kalamazoo, Mich.

Asks Bids on Distinctive Papers

WASHINGTON, D. C., May 5, 1943—The Treasury Department will receive bids on May 18th for furnishing distinctive paper for printing currency and public debt securities of the United States for the fiscal year 1944.

The estimated quantity of paper required for currency is 147,750,000 sheets, or about 1784 tons, and for public debt securities 57,500,000 sheets, or about 1050 tons.

Increases Waste Paper Brightness

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 5, 1943—A wider use of de-inked waste paper in the manufacture of such grades as writing, envelope, tablet and index papers is made possible by General Limitation Order L-11, as amended by WPB. This is especially helpful since it will increase the available supply of usable fiber.

Originally Order L-11 was issued to conserve the use of chlorine, employed as a bleach to remove foreign matter and increase the "brightness" or whiteness in many grades of paper, it was pointed out by the WPB Pulp and Paper Division. Although a saving of some 300 to 500 tons of chlorine a month has been effected, it was accomplished at a loss of approximately 125,000 tons of fibrous materials a year, through restricting the use of de-inked waste because of low brightness and dirt.

The amended order provides that manufacturers of paper may now bring the "brightness" of waste paper used for conversion into bleached papers up to a standard of 74 (the limitation on bleached sulphate and sulphite) instead of 70, the former ceiling of "brightness" for waste paper.

Although combined economic use of chlorine is highly desirable, the supply situation has improved sufficiently to permit its use for this purpose.

Government to Buy More Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 5, 1943—The Paper Specification Committee of the Joint Congressional Committee on Printing has had a preliminary meeting in connection with the semi-annual bid opening for paper for the use of the Government Printing Office for the six months beginning July 1 next. Further meetings are to be held.

While the quantity of paper to be purchased beginning July 1 has not yet been determined, it is understood on good authority that it will be very much larger than for the past six months and will be the largest quantity of paper ever purchased by the Government Printing Office for a six months period. It is reported that the Specifications Committee has decided on two new classes of paper, including ground wood writing and 50 per cent white chart paper.

Marty Paper Co. in New Home

The Marty Paper Company has removed from 41 Park Row, New York, to 158 Water street. On this new site the company occupies all of a five story building which is ideally located for a firm handling and stocking a complete line of lithographic, printing and duplicating papers, as this company does. There is a loading platform directly into the building and all of the departments including general offices, sales, warehousing and shipping, will be under one roof. The new telephone number is Whitehall 3-1317. The Marty Paper Company is a member of the Paper Association of New York City.

Paper Products Co. Moves

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 3, 1943—The Paper Products Company, operated by Harry Epstein, selling agents for mills, buying and selling exclusively for the jobbing trade, has removed from Room 926 to Room 341 in the Boston Chamber of Commerce Building.

Midwest Concerned Over Cost Plus Factor

Higher OPA Ceilings Appear Necessary to Equitably Adjust Paper Prices — Plan and Discuss Speed-Up Deliveries — Merchants Compare War Business Experiences — State Employment is Higher.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 5, 1943—With production still falling behind, partly because of pulp scarcities and partly because of manpower shortages, the local paper industry this week evidenced grave concern over the absence of a "cost plus factor" in the making of paper. From several paper headquarters came reaffirmation of the harm done by a March, 1942, price freeze and a September labor freeze and there was plenty of evidence that the industry needed either new price ceilings or a markup that would insure an "incentive" profit.

The "lesser" grades such as groundwoods, found the current week a continuation of new market demands and an increase in the general tightening. Sulphites were reported to have fallen still further behind in orders while deliveries of books and covers were said to be at "an even more critical stage." Krafts were in a similar position as were specialties. Waste papers continued about unchanged. It was indicated that efforts to get jobber cooperation in the establishment of "end use" essentially during war time were meeting with a fair measure of success but needed much more "over all cooperation" on the part of the industry in general.

Plan Delivery Speed-up

S. F. Beatty and the Graphic Arts Association of Illinois are using all available avenues to cooperate with Chicago paper merchants in adapting themselves to the delivery restrictions imposed by the Office of Defense Transportation in the interests of the war effort. Recently, the Association pointed out that the tendency of printers to wait until the last moment in procuring needed stock was making it very difficult for paper merchants to estimate peak loads and to give the service desired. The manpower situation, shortages in some stocks and the delivery restrictions have, according to the Graphic Arts Association, developed some problems which the printers could help solve or "at least materially reduce."

Warning that unless printers cooperated to the fullest extent in the placing of orders, the paper merchants might still have to further curtail deliveries, was expected to result in a wholesome improvement in the practices of the industry locally. Paper merchants want to provide as many deliveries as possible and as good a service as possible. The cooperation of their own Association in bringing this about is getting good reaction in the Chicago area and will extend into other paper centers throughout downstate Illinois.

Salesmen to Speed-Up Deliveries

The western division of the Salesmens Association of the Paper Industry decided at its Monday, April 26, meeting to take all available steps to develop programs which would be of "more interest to more people." Questionnaires sent out on the subject of the Monday meetings brought out the information that this broadening out program should be followed and that meetings should adjourn around 1:30 in the afternoon as a much needed "time saver." As a result of the questionnaire, the SAPEYES expect to have one outside speaker a month to talk on problems of both general and specific interest to the salesmen and the paper industry.

Employment Up in Illinois

Employment in the paper goods and printing industry in Illinois increased 2.3% as of February 15 compared to January 15 while payrolls in the 270 reporting industries declined 0.2% during the same period according to figures from the Illinois Department of Labor. Total weekly payrolls for the group during February totaled $1,512,351 with 39,249 employees reported.

New Tanglefoot Headquarters

The Tanglefoot Company, important suppliers of paper specialties in this area, has recently moved its offices from 510 North Dearborn street to a suite of offices on the seventeenth floor of the Conway building, "paper center" of Chicago. The move is expected to provide better service for Tanglefoot customers and to broaden the sales prospects of the company as well as added space to develop the new products designed to meet modern war time usage. Sample and mailing rooms are a part of the suite which provides better accommodations for customers. H. J. Fraser is in charge of the Chicago office.

Merchants Compare War-Business Experiences

Robert Zeigler, assistant secretary of the N.P.T.A. and W. K. Kidder, regional paper administrator of the Chicago office of the Office of Price Administration, were guest speakers at the April meeting of the Chicago Paper Association which was high lighted by a recounting of experiences during the first world war by Albert Steindler of the Inlander-Steindler Paper Company, well known Chicago coarse paper house. He was ably seconded by Frank Peck, head of the Hanchett Paper Company, who likewise recounted the comparisons between "then and now." Mr. Ziegler held closely to the well developed N.P.T.A. program with reference to the "end use" procedure and to the services provided by N.P.T.A. on price control. S. S. Weil, head of the Chicago Paper Association, presided.

Fire Damages Paper Stock Plant

RAHWAY, N. J., May 3, 1943—Fire, which broke out shortly before noon of April 27 at the Mancuso Paper Stock Company, 272 Haydock street, caused loss estimated at $5,000 to the stock and building.

The blaze started on the outside of the two-story building and quickly spread to the interior as flames enveloped the waste paper and old cloth stored there.

Obituary

Harold C. Webber

Funeral services for Harold C. Webber, 40, chemist at the Morris Paper Mills, Morris, Ill., fatally hurt when he was thrown, or fell, from a horse, were held on April 24 at the First Presbyterian church.

At the time of the accident Mr. Webber was exercising a saddle horse owned by Miss Barbara Bannon. He had been riding it in an alley when, in a spirited move, the animal reared. Mr. Webber was thrown or fell backward from the saddle and struck his head on a low cement curbing. He was dead when help reached him.

Mr. Webber went to Morris in September, 1940, from Munising to serve as chemist at the Morris Paper Mills and during his short stay there had made many friends among his co-workers and had been active in civic affairs. He centered his attentions on Boy Scouting and was cubmaster of Morris' first cub pack. Recently he was elected a Shabbona district commissioner in the Rainbow council of the Boy Scout organization. His wife has been active in the work of the Girl Scouts and other groups.

Born in Randolph, Me., August 2, 1902, Mr. Webber was graduated from the University of Maine in 1926. There he became a member of Sigma Chi fraternity and played on the varsity tennis team. After graduating from college he accepted a position with the Munising Paper company as chief chemist, and held it until going to Morris.

He married Ruth Adams, of Munising, December 30, 1926. She survives him with two children, Donald, 14, and Jane, 11. His parents, Mr. and Mrs. Fred Webber, of Gardiner, Me., also survive.

Zachary F. Hawe

Zachary Francis Hawe, 53, vice-president of the Shaughnessy-Kniep-Hawe Paper Company, and president of the old St. Louis Paper Company, died Sunday of heart disease at Barnes Hospital, following a long illness. He lived at 7121 Delmar blvd., Univercity City, Mo.

Mr. Hawe, a native of St. Louis, was active in the paper business here for 37 years. A member of the board of directors of the Missouri Athletic Club, he served as vice-president and treasurer of the club in 1939-40.

Surviving are his widow, Mrs. Nettie Crowley Hawe; two sons, William Hawe and Pvt. Zachary Francis Hawe, who is stationed on the west coast; and two sisters.

James F. Dean

James F. Dean of 7735 Sunset drive, Elmwood Park, Ill., manager of the Chicago branch office of the American Tissue Company, and a former resident of Holyoke, Mass., died suddenly April 23 in Franklin Boulevard hospital in Chicago, Ill. He was a veteran of World War One, serving for the duration of that war in the U. S. Navy.

After the war he returned to Holyoke, entered Bay Path Institute from which he was graduated and then took a course at the Traffic Institute in New York City. He was assistant traffic manager of the local branch of the American Tissue Company until 1932, when he went to Chicago to manage the Chicago office of the firm. Mr. Dean was a former member of the Holyoke Knights of Columbus and was a member of the Barry Council of the Chicago Knights of Columbus.

He is survived by his wife, the former Dorothy Jubinville of South Hadley; one daughter, Dorothy, and two sons, Donald and James, all at home; one sister, Atty. M. Bertha Dean of this city; four brothers, Eugene J. of this city, Emmett with the American Red Cross in Washington, D. C., Henry W., of the sales department of the American Tissue in Chicago and George A., a manager for the telephone company in New York City.

George T. Ferguson

George T. Ferguson, salesman for the Hollingsworth & Whitney Company, died May 1 at the Flower and Fifth Avenue Hospital, Fifth Avenue and 105th Street. He was fifty-eight years old and lived at 333 East Forty-third street.

Surviving are his widow, Mrs. Frances May Ferguston; two daughters, Mrs. Frances Laughton and Auxiliary Mildred I. Ferguson, of the WAAC, and a son, Lieutenant John Ferguson, United States Army; a brother, John I. Ferguson, and two sisters, Mrs. Joseph Pelzzare and Mrs. Pauline Wagner.

To Hold Chemical Show Dec. 6-11

Dates for the 19th Exposition of Chemical Industries have been definitely set for the week of December 6 to 11, 1943. Announcement was made this week by Charles F. Roth, manager of the exposition. Ninety per cent of the companies responding were enthusiastic for the holding of the exposition. These were exhibitors in the 1941 exposition held in New York. The long series of exhibitions, held biennially, dates back to 1915.

This year Madison Square Garden will be the scene of the event instead of Grand Central Palace. The change results from the fact that the U. S. Army has commandeered the exposition floors of the Palace as an induction center. Following a survey of various building facilities it was found that the Garden is the only building available in New York City suitable for the needs of the Exposition.

All exhibition space will be on one huge floor. However, the actual amount of space available will be approximately one-half of that of the 1941 Exposition which was held in the Palace. Sizes will vary from 22x14 feet to 8x11 feet. As now planned there will be a few booths of larger size available.

Industrial exhibitions of the character of the Chemical Exposition have proven most helpful in the war effort in many ways. As in peace time, it brings about an interchange of ideas and solves many problems. Exhibitors welcome it as an aid in post-war selling and distribution of their products which will be available when their war efforts have terminated. Then, too, the contacts made through the Exposition are invaluable to exhibitors. Getting more from present equipment through efficiency and making it last longer will be factors in the Exposition program.

A diagram of floor plans is now being prepared and will be available in a few days. Copies can be had from the International Exposition Company, 480 Lexington Avenue, New York City.

Issues May Pulp Allocations

WASHINGTON, D. C., May 5, 1943—The Pulp and Paper Division of the War Production Board announced today that certain unbleached kraft pulp inventories have been re-allocated among paper mills to assure the continued operation of all mills during the month of May and a minimum twenty-day inventory as of June 1.

This action was based upon recommendations of the Wood Pulp Allocation Industry Advisory Committee after a four-day session in Washington. It was found that the supply of unbleached kraft (sulphate) pulp was approximately 20,000 tons short of the amount necessary to provide paper mills with a thirty-day inventory, and mills with adequate supplies were directed to release portions of their unbleached kraft pulp inventories to those mills having an inadequate supply.

A twenty-day inventory of pulp is not considered adequate and the Pulp and Paper Division realizes that further action must be taken to insure the manufacture of sufficient paper and paperboard to meet essential demands from whatever supplies are on hand. It may become necessary, the division said, to invoke the "withholding clause" of Wood Pulp General Preference Order M-93, under which pulp producers may be required to set aside and hold portions of their products for future disposal at the direction of the War Production Board.

May allocations of other paper making pulps were such as to make possible the maintenance of from thirty to thirty-five day inventories, but the Pulp and Paper Division pointed out that the cooperation of the industry was necessary to augment the efforts of the WPB to maintain or increase supplies of these essential commodities.

Unless the production of pulp-wood and wood pulp can be expanded, and the paper industry itself can increase its use of substitute fibres and waste paper, consumers of wood pulp will be faced with a further reduction of their presently low inventories as well as a further curtailment of their operations, the Pulp and Paper Division stated. The reason for this, it was made clear, would be the necessity of insuring adequate supplies of essential war products, as well as to guarantee equitable treatment throughout the entire paper industry.

Although the supply of bleached sulphite pulp was considered inadequate, there was sufficient to permit allocations on the basis of a thirty-day inventory as of June first. These inventories were calculated on the basis of each consuming mill's average consumption over the past few months, it being deemed necessary to discourage any increase in the consumption of bleached sulphite at this time. Paper manufacturers using this type of pulp are urged to substitute waste fibres and unbleached sulphite. Revised Army, Navy and Government Printing Office specifications, it was pointed out, will facilitate such substitution in many types of paper.

Supplies of strong unbleached sulphite are becoming less adequate, and may become as scarce as bleached sulphite; therefore this month's allocations were reduced from a 45 to a 35 day inventory basis.

The supply of news grade unbleached sulphite is considered relatively ample based partly on the agreement by which part of Canada furnishes additional supplies of news grade sulphite for United States consumption. Use of this grade as a substitute for better grade of pulp is urged.

Allocations of soda pulp were continued on a 30-day inventory basis. Supply of northern bleached sulphate was inadequate to meet demands on any reasonable inventory basis. Some substitution of southern for northern bleached kraft was possible, but there are no prospects of any improvement in the supply of this grade in the near future. Groundwood supplies, except for the west coast, continue to be adequate. Additional supplies of wet groundwood are believed to be available from Canadian mills.

Carter, Rice Hold Sales Meeting

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 3, 1943—Carter, Rice & Co., Corp., held a quarterly sales meeting April 24 at the office of the company, at which trends, policies and other important matters were discussed.

Preceding this meeting, a breakfast meeting took place at the Parker House, when C. A. Gordon, vice-president of the Oxford Paper Company, H. R. Hopkins and P. L. Hovey, of the same company, addressed the meeting. Carter Rice & Co. have been distributors for the Oxford Paper Company for a quarter of a century.

On the previous Friday evening, there was a meeting at the Carter Rice office, where representatives of the Kimberly-Clark Corporation, of which Carter Rice & Co. are distributors in the Boston territory, discussed their products.

Paper and Cordage Men Hold Dinner

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 3, 1943—The Philadelphia Paper and Cordage Association held its annual shad dinner and floor show at Walton Roof on last Friday.

On Friday, May 21, the Association will meet at 12:30 for luncheon in the Arcadia Restaurant. Roger Burman, Philadelphia manager of the National Cash Register Company, will be the speaker. Mr. Burman has been abroad for the past sixteen years as representative of the National Cash Register Company with headquarters in Dayton, Ohio, will speak on Japan and Hawaii December 7, 1941. Living in Berlin, Germany, from 1929 to 1933, and in Tokio, Japan, from 1934 to 1941 where he covered the Far East, he arrived in Hawaii in 1941 where he witnessed the attack on Pearl Harbor on December 7, 1941.

Ed. Furlong in Armed Service

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 3, 1943—With more than one hundred in attendance and nineteen out of town guests, Ed. Furlong, general manager of the Wilcox-Walter-Furlong Paper Company, was tendered a surprise dinner in the Betsy Ross Room of the Ben Franklin Hotel on Friday evening last. The occasion was to celebrate his departure for Washington to enter the service of Uncle Sam. Lieut. Furlong was the recipient of many gifts, among which were a regulation Navy wrist watch, presented by his firm, a regulation silver cigarette case, presented by Dill & Collins, and a regulation pen and pencil set together with a brief case, presented by the salesmen and girls in the company's office.

R. K. Ferguson Heads Paper Div.

Roy K. Ferguson, president of the St. Regis Paper Company, has accepted the chairmanship of the Manhattan Paper division of The Greater New York Fund campaign, it has been announced by Medley G. B. Whelpley, a partner of Guggenheim Brothers, chairman of the Manhattan Industry Section of the Fund.

In taking over the chairmanship, Mr. Ferguson expressed confidence in the loyalty of the industry for the Fund, an annual appeal directed exclusively to business concerns and employee groups on behalf of 406 voluntary hospitals, health and welfare agencies.

"The services of these agencies always have played an important role in New York City," he declared. "In a period of war time emergency they are doubly vital, safeguarding health and morale on the home front."

He also indicated that the work of organizing the industry and forming a representative committee to give competent leadership to the 1943 effort is under way.

Citing the services provided by the hospitals and health and welfare agencies affiliated with the Fund, he stressed the part these agencies play in keeping the metropolis a friendly community in which to live and do business. Every year, he pointed out, the agencies assist directly 2,000,000 New Yorkers—two out of every seven.

"In obtaining contributions from publicly owned corporations, the Fund will ask one total gift from each," the chairman explained. "Thereafter they will not be solicited by any of the affiliated agencies.

"Such gifts, however, should represent the corporation's proper and adequate share of the $21,000,000 that must be raised from the generosity of the community for the support of the vast network of welfare and health institutions," he continues. "Corporations will be asked for larger gifts this year because of greater demands faced by the agencies due to wartime needs."

In obtaining contributions from partnerships and privately owned corporations the Fund will ask for a supplemental gift over and above the amount the Fund expects they will give to the individual agencies to which they have a traditional loyalty.

Casein Production

The recent increase in casein selling prices authorized by the Office of Price Administration apparently has had as yet little influence on production. The estimated output for March—the first full month following the increase in price ceilings—was 1,540,000 pounds. This was an increase of 280,000 pounds over the February production, compared with a gain of 800,000 pounds a year earlier. The March output was 2,860,000 pounds, or 65 per cent, smaller than that for the same month last year. Smaller production was general in all areas, ranging from a decrease of 52 per cent in the Far Western States to 85 per cent in the East North Central States.

Sales reported by driers in March were 45 per cent less than the March sales last year. The reports received on prices were so few and scattered that it was impossible to use them for accurate price determination, particularly by regions. Price data for March have therefore been omitted.

Stocks of casein held by driers on April 1 were smaller than those held on March 1. Totaling 6,500,000 pounds, they were also 33 per cent smaller than stocks of April 1 last year. Driers' stocks have been decreasing regularly each month since August 1942, when they totaled 15,700,000 pounds.

Recent market reports indicate that the demand for casein continues unsatisfied. Because of the few sales reported, it is also difficult to establish market prices. A small quantity of casein was reported sold at 21¾ cents, f.o.b. sellers' plants.

DRIED CASEIN PRODUCTION, SHIPMENTS, PRICES, AND STOCKS

By Regions—March, 1943

Regions	Production, Change 1943 from 1942, Per cent	Shipments, Change 1943 from 1942, Per cent	Ave. Price Received F.O.B. Factory	Stocks at plants April 1, Change 1943 from 1942, Per cent
No. Atlantic.....	—60	+ 7	Prices omitted be-	—44
E. No. Central...	—77	—12	cause of inability	—66
W. No. Central...	—85	—53	to obtain suffici-	—73
West	—52	—87	ent data for ac-	—80
United States...	—65	—45	curate price de- termination.	—33

[1] Estimated U. S. total production casein March, 1943—1,540,000 pounds.

[2] Estimated U. S. total stocks casein held by driers April 1, 1943—6,500,000 lbs.

Philadelphia Paper Market Strong

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 3, 1943—Prices of paper stock are reported reaching ceilings which, however, are not regarded as any too high. A good demand for all grades is reported although volume is restricted because of the labor situation; merchants could handle a great deal more business if they could obtain more labor.

In connection with kraft paper it is reported more and more difficult to find mills willing to accept business unless it is for direct war needs. One case is cited where a conservative manufacturer secured an apparently desirable location, and after investing a million dollars in equipment, etc., and training help to make paper, along came a shipyard, and the manufacturer is now confronted with the problem of having the help refuse to work unless the paper is on war contracts. This situation is particularly acute among manufacturers who are located in areas of war industries. In cases of other mills, where customers have to have paper, they will buy from mills which they never thought of before but where help is not interfered with because of war industries.

Process 38,000 Tons Waste Paper

WASHINGTON, D. C., May 5, 1943—Paper mills having equipment for removing the ink from waste paper processed 38,000 tons of waste paper during the month of March and produced therefrom 28,500 tons of usable de-inked fiber, the Pulp and Paper Division of the WPB announced today. This tonnage represented approximately 80 per cent of the productive capacity of the de-inking equipment and compares with operations of 72 per cent of capacity during February and 59 per cent of capacity for November, 1942.

Because the types of waste paper treated in the de-inking plants is usually good quality book, magazine and ledger paper high in sulphite content, the de-inked fibre is considered a substitute for bleached sulphite wood pulp, the supply of which is inadequate to meet essential requirements.

Canada Demonstrates Moral Strength

STAMFORD, Conn., May 5, 1943—"In making the all-out transformation from a peaceful to a militant democracy Canada has given a remarkable demonstration of the moral strength of the British Commonwealth of Nations," said Royal S. Kellogg, secretary of the News Print Service Bureau, speaking to the Kiwanis Club here today in furtherance of the Canada-United States Good Will Week, which for several years has been observed by Kiwanis Clubs throughout the United States.

"Canada of her own free will and without any treaty obligations whatever, went into World War II in defense of human decency and individual rights on September 3, 1939. At that time the personnel of her navy was 1,800, of her army 4,500 and of her air force 4,000. Now she has 5,500 in navy services, 445,000 in the active army plus 100,000 in reserve, and 200,000 in the air service. A greater accomplishment in 3½ years starting from scratch would be hard to find anywhere.

"Canada gets no lend-lease aid from the United States, but does make heavy purchases here which are paid for in dollars. She is also making a billion dollars of war materials and equipment for the United States. Notwithstanding all her tremendous expenditures, Canada in the preceding three years has paid 70% out of income and in the current fiscal year is still paying 50% as she goes. This has been done by income taxation even heavier than in Great Britain but it is a sound financial policy. By taxation, price and wage fixing early established, inflation has been much better controlled than in the United States. The Cost-of-Living Index now is only 16% above that of August, 1939.

"Canada and the United States are cooperating in countless and mostly unpublished ways. War supplies and equipment cross the border without duty either way. Washington and Ottawa are in constant communication and coordination. An especially notable example is the construction of the Alcan Highway across Canada to Alaska by the United States and the building by Canada of paralleling air fields. There is conquest in Europe, but cooperation in North America.

"The mutually necessary war effort on the part of Canada and the United States has greatly hastened the inevitable economic rapprochement of two peoples of largely common heritage and the same concepts of civilization—and it is all to the good!"

Investigate Albemarle Explosion

RICHMOND, Va., May 3, 1943—The double barrelled investigation into the cause of last week's disastrous explosion at the Albemarle Paper Manufacturing Company—by the State Commission of Labor and Industry and the Richmond Department of Public Safety—was still in the "we are making progress" stage last week.

State Labor Commissioner John Hopkins Hall, who assigned two safety investigators to the explosion immediately after it occurred, said that they had made "substantial progress," but he could not say when they would finish their report.

"There is nothing specific holding up their report, but these things take time," Mr. Hall said. "They have not yet been able to interview a number of the injured whose statements might throw some light on the matter and they are working on other matters as well as the Albemarle explosion."

Safety Director W. C. Herbert said a report from his department should be finished next week, but it will be sent immediately to the City Attorney for further action.

Seven persons died in the disaster April 20, when a five-ton boiler used for sterilizing rags ripped from its foundation and demolished one section of a large building at the paper company.

Must Keep Paperboard Sales Records

WASHINGTON, D. C., May 5, 1943—Producers of paper board sold east of the Rocky Mountains and their customers must preserve their records of sales or purchases of paper board aggregating ten tons or more for as long as The Emergency Price Control Act of 1942 remains in effect, the OPA has announced.

Previously, under Revised Price Schedule 32 (Paper Board Sold East of the Rocky Mountains) these records had to be kept for a period of not less than one year. The change is embodied in Amendment No. 5, effective May 10.

OPA also now requires all producers to preserve for the lifetime of the Price Control Act all their existing records relating to prices charged for paper board and specialty paper board sold or contracted to be sold at a definite price during the period October 1, 1940, to October 15, 1941.

This will bring Revised Price Schedule 32 in line with the standard provisions now being used in other regulations with regard to records and reports.

Walloomsac Mill to Start

HOOSICK FALLS, N. Y., May 3, 1943 — Definite plans for the resumption of operations at the Walloomsac mill are under way. While many details are yet to be developed, it was stated authoritatively that the mill will soon be in operation. Workmen are already engaged in conditioning the machinery and activities at the property indicate that the advent of the reopening of the mill for manufacturing is not far distant.

The mill is equipped to produce paper board of a high standard of quality and it was said that its initial opening operations will be confined to one of the two large machines in the plant. This would indicate that up to fifty men will be employed.

While nothing official has been learned, it was said that the plant will probably be operated under the name of Walloomsac Paper Mills.

Duty on Target Paper

Custom officials the Import Committee of the American Paper Industry reports have decided that Canadian target paper is dutiable as paper not specially provided for at 30 percent, and is not admissible as printing paper at one-fifth cent per pound and 5 percent. The officials found upon investigation that such paper must be made to strict specifications, especially of such fibre content that when perforated by bullets, the holes will be clean cut not rough tears. The prospective importer may try to have the paper admitted duty free as military supplies, though the paper is to be imported, if at all, in roll form and then be printed by commercial establishments on Government order.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending May 1, 1943

STOCKS

	High	Low	Last
A. P. W.	3⅛	2½	2⅝
Armstrong Cork Co.	35	34½	34⅞
Celotex Corp.	14	13½	14
Celotex Corp., pf.	89¾	88⅝	89¾
Certain-Teed Products Corp.	6⅜	5¾	6⅜
Certain-Teed Products Corp., pf.	59½	58	59
Champion Paper & Fibre Co.	20	19½	19⅞
Champion Paper & Fibre Co., pf.	105½	105	105½
Congoleum Nairn Co.	21½	20⅞	21⅛
Container Corp. of America	22½	21⅞	22½
Continental-Diamond Fibre Co.	14	13⅜	13¾
Crown-Zellerbach Co.	14¼	14	14
Crown-Zellerbach Co., pf.	91⅞	90½	90¾
Dixie Cup Co.	13¾	13½	13⅝
Dixie Cup Co.—A	40	39⅝	40
Flintkote Co.	18⅜	17½	18¼
Flintkote Co., pf.	105	105	105
Robert Gair	3⅞	3½	3½
Robert Gair, pf.	....	....	....
International Paper Co.	13¼	11⅞	12¾
International Paper Co., pf.	59½	58	59¼
Johns-Manville Corp.	83½	80½	83½
Johns-Manville Corp., pf.	130	130	130
Kimberly-Clark Corp.	30¼	29½	30
MacAndrews & Forbes	28	27¾	28
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	34	31½	32
Mead Corp.	9⅞	9¼	9¾
Mead Corp., pf. A—6%	....	....	....
Mead Corp., pf. B—5½%	73	73	73
Paraffine Companies, Inc.	42	41	41
Paraffine Companies, Inc., pf.	101½	101½	101½
Rayonier, Inc.	13⅜	12¾	13
Rayonier, Inc., pf.	29½	28¾	29¼
Ruberoid Co.	23⅞	23½	23½
Scott Paper Co.	42½	41	42
Scott Paper Co., pf.	112	111⅞	111⅞
Sutherland Paper Co.	29½	29	29½
Union Bag & Paper Corp.	10⅝	10	10½
United Paperboard Co.	5½	5⅛	5⅜
U. S. Gypsum Co.	68¾	67½	68½
U. S. Gypsum Co., pf.	180	179½	179½
West Virginia Pulp & Paper Co.	15⅞	15⅛	15¾
West Virginia Pulp & Paper Co., pf.	107	107	107

BONDS

Abitibi Pulp & Paper Co. 5s '53	65⅛	65⅛	65⅛
Celotex Corp. 4½s '47	102	101¼	102
Certain-Teed Products Corp. 5½s '48	99½	98⅜	99
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	107	106½	107
International Paper Co. 5s '47	103¾	103½	103½
Mead Corp. 3¼s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	103	103	103

New York Curb Exchange

High, Low and Last for Week Ending May 1, 1943

STOCKS

	High	Low	Last
American Box Board Co.	7	7	7
Brown Co., pf.	....	....	....
Great Northern Paper Co.	33	33	33
Hummel-Ross Fibre Corp.	4¾	4½	4¾
National Container Corp.	11	10⅝	11
St. Regis Paper Co.	2¾	2½	2⅝
St. Regis Paper Co., pf.	132	132	132
Taggart Corp.	4	3⅞	4

BONDS

American Writing Paper Co. 6s '61	92½	91¼	92½

M. & O. Earnings Off

The Minnesota and Ontario Paper Company and its United States and Canadian subsidiaries showed a consolidated net income of $343,422 for the three months ended March 31, 1943, as compared to $411,779 for a similar period in 1942, R. H. M. Robinson, president, reported.

The company manufactures newsprint, groundwood kraft, sulphite papers, insulite and lumber products, and maintains mills at International Falls, Minnesota, and Fort Frances and Kenora in Canada.

Net sales reported for the first quarter were $5,690,064, a drop of $481,759 from net sales for the first three months of 1942, which were $6,171,823. Cost of sales reported for the same period was $4,498,200 as compared to $4,287,685 last year. This left a gross profit of $1,191,863 in comparison to $1,884,137 in 1942.

Selling, administrative and general expense was $438,153, leaving a net profit on operations of $753,709. First quarter of 1942 showed these expenses totaling $497,583, for a net profit on operations of $1,386,554.

Interest on income mortgage bonds was $108,467 with a net income before income and excess profit taxes of $527,708. Last year first quarter figures were $120,393 and $1,283,968. Provision for income and excess profit taxes equalled $204,600 for the first three months as against $899,400 a year ago. Gain on income mortgage bonds purchased was $20,313 for the first quarter compared to $27,210 in 1942.

National Pole and Treating Company, a 72%-owned subsidiary of Minnesota and Ontario Paper Company, showed a net income of $12,626 for the quarter as compared to $21,087 a year ago.

Canadian International Profits Off

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 1, 1943—The annual statement of the Canadian International Paper Company for 1942 shows a reduction in gross sales and total income, and as costs and general expenses were somewhat higher the result was a sharp drop in operating income, a figure of $9,565,120, before interest, depreciation, depletion, taxes, etc., comparing with $15,600,464 for 1941. After the various provisions and deductions, including provision for taxes, and after crediting an amount of $261,212 excess reserve provided for taxes in prior years, there was a net loss for 1942 of $354,180, as compared with a net loss of $322,583 for 1941, which latter figure was after providing for taxes an amount of $6,228,989 which included $2,223,831 taxes for prior years. Accumulated deficit is carried forward at $14,995,560.

The balance sheet shows a sharp gain in net working capital, a figure of $30.4 millions comparing with $24.7 millions at the end of 1941. Current assets of $34,952,000 included cash at $2,779,000 and Dominion of Canada treasury bills at $6,991,000. Current liabilities have declined from $13,261,000 to $4,547,000, the main factors in the reduction being a decrease of $1,700,000 in accounts payable, a decrease of $6,300,000 in taxes payable and a drop of $490,000 in stumpage dues payable.

The adjourned annual general meeting of the company, held at the Head Office in Montreal, was routine in character. The board of directors was re-elected and at a subsequent meeting of the board the officers were reappointed without change.

SEC Exempts Celotex Shares

The Securities and Exchange Commission exempted on April 23 the purchase of 93,100 common shares of the South Coast Corporation by the Celotex Corporation from the Phoenix Securities Corporation

from certain provisions of the Investment Company Act of 1940. The sale price was set at $325,580, or $3.50 a share.

The commission noted that it was obvious from the commercial importance to Celotex of South Coast's principal product, bagasse, that ownership of a substantial block of South Coast common stock had a value of Celotex which transcended the value that the shares might have to be an ordinary investor.

Flintkote Nets 25 Cents

The Flintkote Company and subsidiaries for the twelve weeks ended March 27, sales $6,198,255, compared with $5,905,374 a year ago; net income $244,224 after taxes and charges, equal after preferred dividends to 28 cents a share on 713,706 common shares; year ago $306,490 and 37 cents a share; fifty-two weeks sales $33,299,834, compared with $28,280,848; net income $1;664,888 after taxes and charges, equal after preferred dividends to $2.09 a share; year ago $1,738,364 and $2.21 a share.

Paraffine Nets 64 Cents

The Paraffine Companies, Inc., and subsidiaries, for the three months ended March 31, reports a net income of $326,903, after taxes and charges, equal after preferred dividends to 64 cents a share on 476,062 common shares; a year ago $498,864 and 99 cents a share; nine months' net income of $1,157,383, after taxes and charges, equal after preferred dividends to $2.28 a share; a year ago $1,601,591 and $3.21 a share.

Gair Co. Nets 8 Cents

The Robert Gair Company and subsidiaries for the March quarter, reports a net profit, after provision of $263,000 for taxes, of $154,199, equal to 8 cents each on 1,133,822 common shares compared with $354,208 or 26 cents a share last year, when taxes were $892,000.

Hinde and Dauch Earnings Off

The Hinde & Dauch Paper Company, for the three months ended March 31, reports a net income of $241,467, after taxes and charges, equal after preferred dividends to 54 cents a share on 360,250 common shares; year ago $262,537 and 60 cents a share.

Worthy Paper Profits Up

The Worthy Paper Company Association reports 1942 sales of $451,800 and a net profit of $17,557, compared with sales in 1941 of $331,595 and a net profit of $13,795.

Westfield River Co. Earns Less

The Westfield River Paper Company had net sales in 1942 of $1,547,433 and a net profit of $54,359. This compares with sales in 1941 of $1,449,565 and a net profit of $69,254.

Scott Co. Earns Less

The Scott Paper Co. for the quarter ended April 2, 1943, reports a net income of $405,464, or 51 cents a common share; for like 1942 quarter, net income $507,083, or 61 cents a share.

R. B. Robertson Jr. Made Captain

Reuben B. Robertson, Jr., vice president and production manager of the Champion Paper and Fibre Company, with plants in Hamilton, Ohio, Canton, North Carolina, and Houston, Tex., has just been

CAPT. REUBEN B. ROBERTSON, JR.

commissioned a captain in the Army Service Force. Mr. Robertson, whose home is just outside Cincinnati, has been in Washington since last October 1 and his headquarters will remain in that city.

Abitibi Case To Be Heard in June

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 1, 1943—Information from London reaching interested parties here concerning the progress of the Abitibi case before the privy council, suggests that it may be late in May, or early in June, before the case is heard. The appeal is in behalf of the liquidator from an order of the Ontario court for sale of the properties and undertakings of the Abitibi company to satisfy the claims of the bondholders. The appeal missed the fall sittings of the privy council, but it was expected that the hearing would take place early this year.

Bondholders' claims at Dec. 31, 1942, amounted to $70,433,934 (disregarding U. S. funds), of which $37,165,500 was principal, $36,197,920 arrears of interest and $7,070,424 interest on interest.

W. B. McGoldrick Goes with OPA

Price & Pierce, Ltd., 60 East 42nd street, New York City, announce that William B. McGoldrick has obtained a leave of absence to accept a position with the OPA as Chief of the Industrial Paper Unit of the Paper and Paper Products Division in Washington.

Great Lakes Paper Nets 64 Cents

The Great Lakes Paper Company, Ltd., for 1942 reports a net income, after $475,000 taxes, of $591,856, equal, after preference dividends, to 64 cents each on 100,000 common shares, against 1941 net, after $480,000 taxes, of $453,146, or 18 cents a common share.

All-Fibre Can with Lap-Seam

All-fiber lap-seam construction is the newest wrinkle in can manufacture. The new can, which is suitable for a number of dry food products such as cereals, grated cheese, dehydrated foods, starch type dessert powders, cocoa, spices and others as well as numerous dry chemicals, is of lap-seam construction with top and ends crimped and heat-sealed to the wall. Present production is limited to the output of one manufacturing line until critical electrical equipment is made available. A friction plug with inner expanding disc, provides a tight, easily removed and easily replaced closure. The can has a high resistance to water vapor and grease.

American Can Company makes three types of fiber cans: Spiral, convolute and the new lap-seam. The spiral can is made by feeding two or more narrow plies of paper stock to which an adhesive is applied onto a stationary mandrel or spindle at about a 45-degree angle and combining them by the pressure of an endless belt. In this manner a continuous tube is constructed which may be cut to any desired length, after which metal or paper ends are assembled.

To make the convolute can, a web of paper sufficiently wide to make one or more can bodies is fed on the mandrel at a 90-degree angle, two or more plies forming the tube.

The lap-seam can is made in substantially the same manner as the metal can, i.e.: a body blank or single ply of fibre is formed, overlapped slightly and sealed in a mandrel or horn, employing much the same sequence of operations as in metal can manufacture, the main difference being that in applying the ends, it is not possible to use the double seams which characterize the sanitary can, in which a flanged body is actually hooked and locked into a curled end. In the case of the all-fiber can described here, the ends are crimped and, when heat is applied, sealed by the protective coating.

The three types each have their own advantages. The spirally wound can can generally be made more resistant to moisture, grease and acid penetration and lends itself to a higher-speed production than the convolute type, while the convolute can is stronger, can be made in other than the round shape and is more easily labeled.

The lap-seam can, on the other hand, because it can be manufactured on regular metal can making machinery, is subject to a higher rate of production than either of the other two, is lighter and, for purposes to which it is suitable, is a more economical package.

While the new can at present is offered in a limited way solely as a wartime substitute it has certain inherent advantages which may earn it a definite place in the highly competitive packaging world after the war.

Letterheads in the War

The new portfolio just issued by Crocker-McElwain Company contains twelve interesting and distinctive letterheads on Certificate—all linked with the war effort. One of the outstanding features of the portfolio is the adaptation of peace-time letterheads to the war tempo through the means of clever patriotic devices added to or incorporated with the letterhead design. As an aid to printers and designers of letterheads, the Crocker-McElwain Company are selling twelve of these patriotic electros at cost. The letterhead portfolio and the catalog of patriotic cuts will be sent to anyone on request.

TILE CHESTS *Built to your Requirements*

KALAMAZOO tile chests can be built to your exact requirements for stock storage and bleaching. The vitrified glazed tile, made in our own tile plant, is impervious to all ordinary stock fluids and is suitable for storage of liquid alum. The smooth surface is cleaned easily and quickly with hose. Your installation can be designed for adaptation to pump delivery and agitation of any type. Our manufacturing facilities and years of experience with the paper industry are geared for immediate attention to your individual requirements. Write for complete information about prompt delivery and carefully supervised installation.

So satisfactory was the first 37-foot Kalamazoo Glazed Tile Chest installed for the Sorg Paper Company, Middleton, Ohio, that they have recently added two more. All are adapted for Shartle Bros. "Agi-Flow."

BUY WAR BONDS

GLAZED TILE

KALAMAZOO TANK & SILO CO.

KALAMAZOO, MICHIGAN

WOOD

J. W. Haddock Heads Farrel-Birmingham

The Farrel-Birmingham Company, Inc., of Ansonia, Conn., and Buffalo, N. Y., announces the election of John Wolcott Haddock as president of the company. He assumed his new duties on May 1.

Mr. Haddock was formerly vice president of the Sullivan Machinery Company of Claremont, N. H., and Michigan City, Ind. He is a middle-westerner with New England ancestry, the Haddocks having come from Massachusetts by way of New Hampshire and New York state, and the Wolcotts (his mother's family) from Connecticut. He was born in Polo, Ill., August 22, 1904 and attended public schools in Sioux City, Iowa; Chicago, Ill.; Michigan City, Ind., and Colburn, Wisc. His youth was spent in Colburn, where he helped develop a dairy farm out of northern Wisconsin timber country.

Mr. Haddock started his industrial career as a stock clerk in the Michigan City plant of the Sullivan Machinery Company. Here he also worked as shop apprentice, clerk and assistant production manager. Later he was transferred to the Claremont plant. From there he went to the company's New York City office as salesman, then to the general offices in Chicago as assistant to the general sales manager, and later became assistant vice president in charge of sales.

In 1935 he was made general manager of the Michigan City division with complete charge of the plant and the engineering, manufacture and sale of its products. Since 1938 he has been vice president in charge of engineering and sales for the company, dividing his time between the Claremont and Michigan City plants.

He is a member of the American Institute of Mining and Metallurgical Engineers, Army Ordnance Association, and is active in the affairs of the Compressed Air Institute and the American Mining Congress, having been chairman of the Manufacturers' Division of the Congress during the past year.

He was married in 1935 to Gladys Baxter, who sang leading roles in many operettas, including the Great Waltz, Countess Maritza, etc. They have no children.

Late Spring Delays Log Drives

[FROM OUR REGULAR CORRESPONDENT]

BEAVER FALLS, N. Y., May 3, 1943—The annual log drive for a number of paper mills in this district is now under way and a joint operation by the J. P. Lewis Company and St. Regis Paper Company will yield about 15,000 cords of four foot pulp logs this year. Labor shortages, together with an unusual depth of snow and delay in equipment replacements, have hampered the output of pulp during the winter and a late spring break-up of ice in Adirondack lakes has also delayed the river drives. Logging concerns operating several camps in the Old Forge area produced 1,000 cords of spruce and balsam pulpwood and 3,500,000 board feet of hardwood timber, the latter entirely for military purposes. Logging drives on the Beaver river are a thing of the past, the last one being made by the J. P. Lewis Company in 1925. Lumbering operations along the upper reaches of the Beaver river, as in the region of other rivers harnessed for production of electric power, depend now on transportation of logs by truck to mills or railroad. The longest drive is scheduled for the Moose River, where one company has 5,000 cords ready to glide down to mills. This is from 20,000 to 25,000 cords less than normal due to the lack of lumberjacks. The drive is about 40 miles. Thirty thousand cords of pulpwood cut at several camps of one company lies on banks of streams awaiting the river drive to mills in the Glens Falls area.

A Builder Has a Birthday

Private industry's record in war production is a fair indication of the capability of business and industry to solve post-war problems for themselves and for the Nation, Harold K. Ferguson, president of The H. K. Ferguson Company, Industrial Engineers and Builders of Cleveland and New York, said today in a message commemorating the 25th anniversary of the founding of his company.

The Ferguson Company was founded in 1918, and was one of the first organizations in the United States to offer "a complete industrial service," consisting of designing, building and equipping plants and factories ready for operation by their owners.

"No phase of our war program has been carried out with greater dispatch or with greater success than our production program," Mr. Ferguson said. "Actual assembly line figures of today were commonly regarded in the confusion of two years ago as astronomical goals to be sought for but very likely never attained. Today, even those marks are being surpassed.

"Industry has never been in better shape to avoid confusion after the war than now," he emphasized.

A recent achievement for the company was designing and erecting buildings for a large synthetic rubber plant in three-and-a-half months. The plant produced rubber less than five months after it entered the design stage, and Mr. Ferguson termed it "one of our fastest jobs in 25 years of building."

Great Northern to Raise Food

[FROM OUR REGULAR CORRESPONDENT]

GREENVILLE, Maine, May 3, 1943—The Great Northern Paper Company has purchased 182 head of western steers for distribution to the various company farms, where the cattle will be reared for beef purposes.

These steers were purchased by the company farm superintendent, Earle W. Vickery, who went to the western markets and bought the cattle in St. Paul, Minn. The breeds are Black Angus, Herefords, Shorthorns, and Durhams, and the present average weight is 900 pounds, age one and a half years.

Six car loads arrived recently at Anson and Madison where they are temporarily on the Fletcher and Burns farms.

Because of the quantities of feed necessary for feeding the many men employed in woods operations, the Great Northern is planning to raise all possible commodities on the company farms. The produce will include 6,000 bushels of potatoes, and large quantities of turnips, carrots, and other winter vegetables, as well as beans and peas for canning.

These farms are situated at Pittston, where 30 acres are being considered for planting. There are also farms at Millinocket, and the Grant farm, 40 miles north of Greenville, as well as farms in Madison and North Anson, where grain is raised for feeding the hundreds of company horses.

B. C. Paper Production

Production of pulp and paper in the province of British Columbia during the year 1942 according to the Department of Lands was valued at $27,457,000. Production the previous year in province was $27,723,000. The ten-year average production valuation was $17,353,000. Production in 1940 showed a very decided gain on previous years and this increase showed an equally marked gain in 1941, the figures being fairly closely maintained during the past year.

Pulpwoods exported from the province were valued at $11,000 in 1936, dropped to $5,000 in 1937, and to zero in 1938. Valuation of pulpwood exports in 1939 again rose to $11,000, dropping to $8,000 in 1940, $7,000 in 1941 and $2,000 in 1942.

Newsprint production in 1942 totalled 252,595 tons as against 275,788 tons in 1941 and 262,144 tons in 1940. The previous high mark was in 1936 when 276,710 tons of newsprint was produced at B. C. plants. The ten-year average production for the province was 246,209 tons.

Production of other types of paper has steadily risen in B. C. for a number of years, reaching a total of 75,453 tons in 1941 and showing a slight drop to 74,915 tons last year. The ten-year average production was 47,759 tons.

Dr. Dow Honored

Selection by Columbia University, of Dr. Willard Henry Dow, president of the Dow Chemical Company, as the Chandler lecturer and medalist for 1943, throws the spotlight of the chemical world on this 46-year-old native of Midland, Michigan.

The citation accompanying the award named Dr. Dow as "one of the outstanding industrialists of the present generation" and noted as particularly spectacular "the achievements of the company in producing bromine and magnesium from sea water and of synthetic plastics and rubber."

The Chandler Lecture Foundation was established in 1910 in honor of Professor Charles Frederick Chandler, a pioneer in industrial chemistry and one of the founders of the American Chemical Society. Its purpose is to secure lecturers from time to time eminent in the field of chemistry and to reward their achievements with a medal. Dr. Dow is the twentieth lecturer and medalist so far honored. His lecture is tentatively scheduled at Columbia on May 20 on a subject yet to be announced.

After attending Midland high school, the 1943 recipient of the Chandler award was graduated from the University of Michigan in 1919 with a Bachelor's degree in chemical engineering. Two years ago his alma mater conferred the honorary degree of Doctor of Engineering upon him.

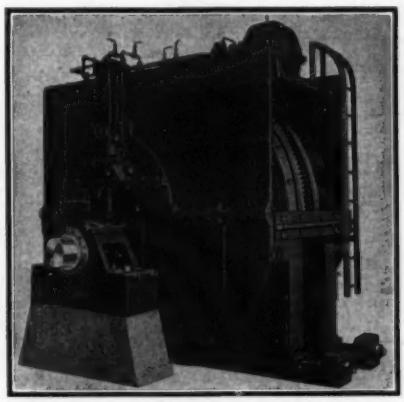
After finishing at Michigan, he went to work in his father's plant as a chemical engineer. In 1922 he was named a director of the company. From 1926 to 1930 he served as assistant general manager; and in 1930, upon the death of the elder Dow, he became president and general manager.

In 1941 he assumed additional duties as chairman of the board.

He is a member of the Advisory Board of the Chemical Warfare Procurement district at Chicago, a director of the American Chemical Society, a member of the Newcomen Society and Torch Club, the American Institute of Chemical Engineers and a member of the Corporation, Massachusetts Institute of Technology.

for FUTURE REFERENCE

ROBERTS



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Henry J. Berger
EDITOR

Vol. 116 May 6, 1943 No. 18

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

American Pulp and Paper Mill Superintendents Association, Twenty-fourth Annual Convention, Commodore Hotel, New York, June 15-17.

WOMANPOWER

Womanpower in industry is nothing new but the employment of female factory workers on a large scale has created a class of labor which entails special consideration. For many years women have, of course, been employed in many industries but not until this war has female labor been in direct competition with male labor on a large scale, especially in the paper and in the so-called heavy industries. In discussing the labor problem in the paper industry, John B. Simonich, industrial relations official of the Kimberly-Clark Corporation, in an address before the Kiwanis Club, recently said that the concern had lost 1,600 permanent employees to the united forces. The more extensive use of women became necessary and there had been a 30% increase in female workers on the payrolls on February 1. Further replacements will increase the ratio of women up to 60%, Mr. Simonich stated, which creates some special problems.

Among these problems are intermediate rates of pay established in the expectancy that women cannot perform all the work men have done and it has been necessary in some instances to employ three women for work previously done by two men. Mr. Simonich also mentioned that the concern must be cognizant of restrictions on women workers, such as limited hours per day, the impossibility of substitution among women, and the necessity for providing extra women to help out in labor situations. The management must also provide around-the-clock luncheon service, first aid and rest room facilities.

In the informative report of the sub-committee of the industrial relations committee of the American Paper and Pulp Association, on women in the paper industry, the summary includes approximately 100 paper concerns, employing more than 70,000 people out of an estimated 140,000 in the whole industry. The report shows that the percentage of women employed has increased slightly more than 50% thus far this year, compared to 1942, and it is estimated that within the next few months the number of women employed in the paper industry will be double the number employed last year. The report states that isolated cases show that a woman physically fitted for a given job can do it nearly as well, and in some cases, better than the men formerly doing it. This point must be kept in mind, the report points out, that all men are not physically able to do all jobs and are not expected to. Too many feel that no female can properly fill paper mill jobs and it all depends on how urgent it is to keep a mill in operation, if male help is non-existent but female help is available. Nevertheless, a woman properly selected and trained can do practically all jobs in the paper industry and this is an important view to realize, the report states. Although the particular desirability of employing married or single women finds no decided opinion the report goes on to state, very few concerns utilize special training classes for women employees but apparently use the some methods of training women as they have men. State laws pertaining to female labor are exacting in some states and it is important to become familiar with these provisions.

A general and quite comprehensive report on womanpower is available in Report No. 136, published by the George S. May Business Foundation, 111 South Dearborn street, Chicago, Ill. The May report states that there is hardly an industry in which women workers cannot be utilized in most phases of production; that there are certain types of work to which feminine temperaments do not readily conform, or which are characterized by hazards to strength, endurance, and physical resistance. In general, women tire faster than men. Also, they are more sensitive to noise, dirt, unpleasant odors, and inadequate washroom and luncheon facilities. . . . Industrial surveys indicate that the forty-hour week is the most satisfactory operation for women. It is claimed that forty-eight hours or more per week induces absenteeism. This is not necessarily due to fatigue, but to the fact that women, particularly those with children, require a certain amount of time for shopping and household chores.

In commenting upon the relative strength of women to men, the May report states in part: "Women's Bureau Labor Bulletin No. 189-1 goes so far as to define the relative strength of women to men in positive figures, as follows: 'In most departments there are jobs deemed not suitable for women, either because the work is beyond the average woman's physical strength (570/1,000 that of man) and resistance (679/1,000 that of man), or because the work requires lengthy experience and training which the emergency does not permit.'"

In discussing the testing of women for job fitness, the May report states that "Excellent information is contained in Safe Practices Pamphlet No. 107, Women in Industry, published by National Safety Council, Inc., 20 North Wacker drive, Chicago, Ill. Excerpts follow: "All women applicants should be given a thorough pre-placement physical examination. The examining physician should be furnished complete information regarding the job for which the applicant is considered, so that the candidate can be placed most advantageously from the standpoint of health, safety and production. . . . Companies employing many women use aptitude, intelligence and achievement tests in making placements to insure best use of native abilities and interests."

Peru Expands Paper Production

All paper mills in Peru maintained a very high production during 1942. At present these mills supply about 50 per cent of domestic requirements for paperboard boxes, 70 per cent of paper bag needs, 60 per cent of envelopes consumed, and substantial quantities of writing and drawing paper. These mills, besides contributing to their own country's requirements, are meeting some export needs. A mill located at Supe produced enough sulphite and kraft papers to supply over 300 metric tons to Bolivia and Ecuador, while another mill undertook production of tissue paper last year, with still another making paperboard and corrugated for domestic use.

As in other countries, Peru's 66 newspaper publishers gradually are adopting conservation measures such as size of publications and number of issues.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
March 20	88.9	March 21	103.6
March 27	89.7	March 28	103.4
April 3	88.2	April 4	102.2
April 10	90.2	April 11	98.9
April 17	89.9	April 18	100.8
April 24	*89.8*	April 25	100.1

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.5	88.9	*89.4*	....	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date..	77.1	89.6	67.4	80.0	85.1	90.4	102.9	*88.8*
Year Average..	80.4	79.8	71.5	83.4	85.6	97.4	90.4	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Ave.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	*94*	..	..	..	..	..	..	..	..	..	..

Week ending Mar. 20, 1943—92
Week ending Mar. 27, 1943—95
Week ending Apr. 3, 1943—95
Week ending Apr. 10, 1943—95
Week ending Apr. 17, 1943—96
Week ending Apr. 24, 1943—97

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

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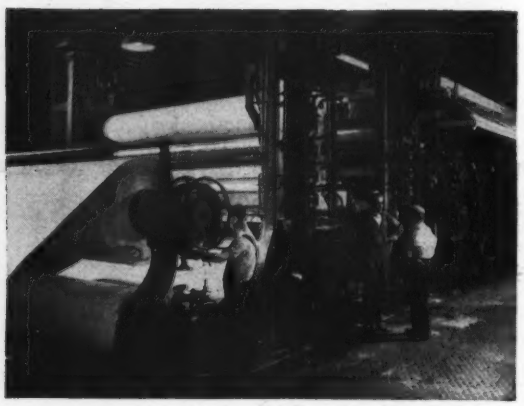

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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
Edited by R. G. Macdonald, Secretary

The Inter-Society Color Council*

Annual Report of TAPPI Delegates

By John L. Parsons[1]

According to a recent statement of Deane B. Judd, Chairman of the Inter-Society Color Council, the aims and purposes of the Council are to "stimulate and coordinate the work being done by the various societies, organizations, and associations leading to the standardization, description, and specification of color, and to promote the practical application of these results to the color problems arising in science, art, and industry." Thirteen national associations, including TAPPI, are member bodies of the Council and support its activities. The number of individual members is over eighty.

At the Council's eleventh annual meeting held at the Metropolitan Museum of Art in New York City on February 26 and 27, 1942, a symposium was held on "Color in Art Education." This is the first meeting at which the Council devoted one of its sessions to color problems connected with art, rather than with science or industry. The following four papers were presented:

1. Emotions Versus Measurement in Teaching Color, by Norman C. Meier.
2. Color-Mixing Systems, Color Versus Colorant Mixture, by Donald R. Dohner and Carl E. Foss.
3. Color-Order Systems, by Milton E. Bond and Dorothy Nickerson.
4. Results of Questionnaire on Color in Art Education, by Royal B. Farnum.

The above four papers appeared in the December, 1942, issue of the Journal of the Optical Society of America. Requests for copies should be addressed to the Inter-Society Color Council, P. O. Box 155, Benjamin Franklin Station, Washington, D. C.

In addition to the technical session of papers, there were exhibits by four schools: The Rhode Island School of Design, Pratt Institute, Cooper Union, and the Colorado State College of Education. The exhibits were explained and discussed by representatives of these schools at a special session.

Six issues of the Council's "News Letters" (Nos. 39-44) were published during 1942, totaling 88 pages. This publication, in mimeographed form, is sent to all delegates. Besides serving as medium for the dissemination of the latest information on color, a continued bibliography and list of patents on color appeared in each issue. In the November, 1942, copy there was an index of special articles in issues Nos. 35 to 44.

The American war standard for the Specification and Description of Color, included as a proposed method in the appendix to the 1942 report of TAPPI delegates, was approved on June 17, 1942 as ASA Standard Z44-1942. Printed copies of the standard may be obtained from the American Standards Association, 29 West 39th Street, New York, N. Y., at 25 cents each. This standard will be discussed at the 1943 annual meeting of the Council.

Among the activities of the Council's committees is the work on color blindness and color aptitude tests. This subject is also listed for the discussion session of the 1943 annual meeting, which will be held concurrently with the winter meeting of the Optical Society of America, March 4-6, in New York City. The highlight of the meeting will be a panel discussion session by delegates of various member bodies. A series of papers on color blindness and color blindness tests will be presented as a symposium on the program of the Optical Society.

Members of TAPPI desiring information on color are invited to send their requests through TAPPI headquarters to the attention of the Inter-Society Color Council.

The present officers of the Council comprise: Chairman, Deane B. Judd; Vice-chairman, Walter M. Scott; Secretary, Dorothy Nickerson; Treasurer, Norman Macbeth; Counsellors, Ralph M. Evans, Carl E. Foss, Michael J. Zigler.

TAPPI delegates to the Council are J. d'A. Clark, M. N. Davis, Helen U. Kiely, H. W. Morgan, B. W. Scribner, E. Sutermeister, J. L. Parsons, and R. G. Macdonald.

The recommendation is made that TAPPI should continue its membership in the Inter-Society Color Council for another year.

Tool Steel Replaced by Fiber

Fiber has been used to replace tool steel in the making of plugs used in forming end windings for small instrument-type motors in manufacture at one of General Electric's plants. The fiber, because of its resilience, was found to offer excellent resistance to wear and to have less tendency to short circuit the end turns of the stator windings. As a result of this change, demand for a critical material has been decreased, while half the cost of the forming plugs has been saved because of lowered cost.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Member TAPPI; Chairman, TAPPI Delegates to I-SCC; Research Chemist, Hammermill Paper Co., Erie, Pa.

Function of War Products Development Section*

By John G. Strange[1]

Many of you are acquainted with the War Products Development Section of the Pulp and Paper Division of the War Production Board. There are in all, seven sections within the Division. The objective of our particular section is to encourage and facilitate the development of paper and paperboard for war uses or as substitutes for critical materials. The idea is to use a reasonably available raw material for as many essential purposes as possible, thereby relieving the enormous burden which is carried by more scarce commodities.

We have a regular staff of five technicians and enjoy the counsel of an advisory committee which has been chosen to represent the industry, geographically and according to technology. This committee meets with the Section monthly and has been of considerable aid to us in our work.

The War Products Development Section was not set up because of any reluctance on the part of the pulp and paper industry to apply its materials in the war program. As a matter of fact, the industry has been extremely progressive and diligent in its consideration of such applications. It has been anxious to be of service in every possible way. The consumers of war materials, too, have done everything possible to encourage the conservation of scarce materials.

A Clearing House

It was in recognition of this situation, namely, a large and progressive industry on the one hand, and the absolute need for conservation on the other hand, that the Section was formed as an agency for expediting and clarifying the application of paper to war production. Primarily, therefore, the War Products Development Section should be regarded as a clearing house between the paper industry and the consumers of war goods. As a clearing house, the Section must, of course, have frequent association with the different branches and agencies of the Armed Forces.

One of the first obligations of the Section was to obtain a good working knowledge of the materials and products which the industry already is producing or has under development. This background was gained through extensive correspondence and through many meetings and conversations with representatives of the industry. Fortified with this knowledge, it was necessary for the Section to broaden its relations with various official agencies. The purpose was to gain a better appreciation of the war production pattern so that applications for paper might be isolated from that pattern and presented to the industry as an indication of new fields in which it might contribute.

Many Applications for Paper

One should not overlook the fact that many who are not familiar with the industry think that paper is primarily something to write on or print on. They have a vague conception of other applications for paper but, by and large, so far as they are concerned, it is a fragile product used for cultural purposes or for some of the conveniences of a highly developed civilization. They are astonished to discover that paper, or variations of it, are widely applicable as functional, mechanical or service items. It is a revelation for them to learn that there are papers which will hold greases, oils, fats, volatile materials and even 100-octane gasoline; that paper products can be made stronger than metals; that paper can be shaped or formed into almost any structure or design; that paper can be made more impervious to hydrogen than rubber; that paper can be produced so that it is nearly as strong when wet as when dry; that paper is used for mechanical, automotive and electrical parts; that paper can be made to resist fire; that it can be given almost an infinite number of different properties; that it is indeed, an exceedingly versatile raw material.

When the concept of fiber's versatility is established, and this involves considerable education, the groundwork is laid for consideration of many problems which otherwise might not come to the attention of the industry. Education, through regular contact with those responsible for the production of war materials, is, therefore, one of the important activities of our Section.

Sometimes, a potential application for paper or paperboard is not anticipated by materials already available or under development in the industry. In such instances, it is necessary to set up a project, indicating as accurately as possible, the objectives involved and giving any information pertinent to the solution of those objectives. When the problem has been outlined, it is assigned to an organization or to groups of organizations which appear best qualified to reach an early and authentic conclusion. It has been our practice to discuss these projects in considerable detail with the Industry Technical Advisory Committee.

Thus far, entirely separate from items handled merely through clearance, we have dealt with 35 projects. Several of these have resulted in successful conclusions. A few have been closed because their objectives did not seem reasonable of attainment. Other projects are still in progress. Feeling that you will be more interested in a discussion of these developments than in a general discussion of the Section's activities, we propose to spend most of the remaining time exploring a few of the current problems.

Special Treatment for Paperboard

The first project of the Section involved a study of special treatments for paperboard to be used in the overseas shipping container. You will recall that one of the requirements for this container is that it withstand immersion in water for an extended period without too great a sacrifice of its physical properties. The point was raised as to whether wet strengthening of the board itself would contribute to the immersive characteristics of the box. An extensive study by one of the members of our technical committee, has

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Member TAPPI; Chief, War Products Development Section, Pulp and Paper Division, War Production Board, Washington, D. C.

demonstrated quite conclusively that wet strengthening of the integral layers of board does not contribute sufficiently to the wet strength of the finished box to make the added expense and effort worthwhile. The reason for this apparent paradox is that the urea-starch-formaldehyde adhesive used for laminating the board to form a 100-point combination apparently fuses into and permeates the paper sufficiently to impart a wet strength which partially masks the increment achieved by treatment on the paper machine itself. While this conclusion may be regarded as a negative one, it nevertheless is a contribution to the subject because it answers a point which has been the cause of considerable discussion and speculation.

As a phase of Project No. 1, attention also was given to the feasibility of repulping overseas boxes which have been treated with asphalt. This point was raised by the English manufacturers because our shipping containers are an important source of fiber to them. As a result of experimentation and contact with manufacturers who have faced the same problem in this country, it was possible to conclude that the asphalt treated overseas shipping container can be satisfactorily repulped with impunity from operating difficulties, provided that proper methods for handling the material are carefully followed. A report to this effect has been sent to England.

3,000 or 4,000 Tons of Metal Conserved

Projects 2, 18, and 22 can be referred to as a group because (like a few other studies) they are restricted for military reasons. It can be said, however, that all three studies have reached successful conclusions and that the products involved are now being manufactured commercially. In each instance, the objectives lent themselves especially to pulp molding techniques and while it is difficult to make accurate estimations, it is possible that 3,000 or 4,000 tons of metal have been conserved as a result of this work. More important, however, is the fact that one of the projects could not have been solved adequately by other materials or processes.

Project No. 3 has been a very interesting and important one. Early last fall the development of high strength, low pressure paper base plastic laminates received rather widespread publicity. Particular emphasis was placed upon the potential application of this new material to the manufacture of aircraft parts. As a consequence of the publicity, considerable interest was stimulated in the pulp and paper industry, in other industrial quarters, and in various government agencies and bureaus. The War Products Development Section received many inquiries concerning the development. In order that the Section might be in a position to answer these inquiries and in order that it might be helpful in the development itself, a search project was set up with the general objective of investigating the status of paper base plastics, particularly as they might relate to the building of aircraft. Allan Wooley joined the Section for the purpose of handling this project.

The first step involved the collection of sufficient information to permit judgment as to the true contribution high strength paper base laminates might make to the war program. It was quickly seen that the development possessed merit and that it was desirable for the Section to inform itself in detail on its several phases. Such information would enable the Section to be helpful in an educational sense to the industry and various government agencies, and also would enable it to act in an orienting and coordinating capacity between the various official and unofficial groups involved.

Three months of intensive work have been spent in the survey and appreciable information has been gathered. The study Dr. Wooley initiated is being continued by Walter Swanson who is well-known to members of TAPPI.

Conclusions That Seem Justified

Without going into detail, we believe that the following conclusions are justified and may be of interest to you today.

1. High-strength, low-pressure paper base phenolic laminates possess characteristics which make it a suitable material for the construction of selected aircraft parts as well as other war products. It has deficiencies, the principal one being its lack of ductility or yield under stress. In some regards, it compares very favorably with plywood, fabric laminates and the light metal alloys.
2. Experts in various fields are of the opinion that the new laminate is suitable for the construction of nonstructural aircraft parts and some feel that it is also suitable for semistructural and even structural parts.
3. There is need for more engineering data concerning the new laminate.
4. The current availability of phenols and phenolic resins is one of the serious aspects of the picture. Consideration of products to be fabricated from the new laminate thus should be limited, for the time being, to important war items.
5. The technology and facilities for manufacturing low-pressure phenolic resins appear to be well established.
6. In our opinion, all phases of the development including pulp, paper, impregnation and fabrication, are receiving the aggressive attention of quite a few companies in the pulp and paper industry.
7. The laminating industry is keeping abreast of the development and several companies are engaged in its application.
8. Companies in diverse industries are pursuing development fabrication work with the new laminate. We believe, however, that more companies should be encouraged to enter this phase of the program.
9. Sufficient quantities of suitable pulp and paper can undoubtedly be made available for the laminate.
10. We believe that considerable impregnation capacity can be made available either through existing equipment or through modifications of equipment in the pulp and paper industry.
11. We believe that there is a considerable amount of fabricating equipment, much of which is idle and could be brought into production when the "know-how" of fabrication has been thoroughly developed.
12. Finally, it is our opinion that progress is accelerating at a rapid rate and that as a consequence, many new fabricators will enter this most important phase of the development. It is our conclusion that developmental fabrication work should be devoted to specific, and impor-

tant products or parts, rather than to the broad techniques of fabrication.

Substitute for Steel Strapping

On previous occasions we have referred to Project No. 5 which involves the development of a paper substitute for steel strapping. Because the rewards of conservation in this field are rather substantial, we would like to touch upon it again. Normally, around 200,000 tons of steel are consumed by the strapping industry. Of this, roughly one half or 100,000 tons is used in the fabrication of "heavy duty" strapping where use requirements are such that only steel can do the job. In some of the other fields where applications are less rigorous, it would appear that a substitute might be employed during the emergency. We have in mind the strapping of lighter weight bundles and boxes, the strapping of articles such as pulp and waste paper, and, perhaps even the handling of commodities such as cotton and clothing.

In approaching this project, we first worked with braided kraft of the type normally used for decorative or ornamental purposes. This material has surprising strength and when wet strengthened and waterproofed, appears to lend itself to many practical applications. It is necessary, of course, to use tension tools and clamps which will adequately handle the paper strap and not bite into the fiber too much, thereby diminishing its strength and holding power. Experiments indicate that clamps can be adapted for this purpose, and that the paper holds its tension load surprisingly well.

The other day we received a letter from one of the firms working on this development. They state that they have developed substitute strapping to a point where it can be used on standard strapping equipment and that one of the major companies in the strapping field is cooperating actively with them. Their particular strapping is lighter than the braided type. It is suitable, however, for handling packages of up to 100 pounds and has a tensile of from 140 to 250 pounds, depending on the thickness of paper employed. It has demonstrated its ability to stay on 100 pound corrugated boxes for over 150 tumbles in the drum test. It can be drawn snugly around the box without damaging the edges, a difficulty which is frequently encountered where steel strapping is used. Commercial interest in this development is already manifest.

A week or so ago, the Section issued a special technical bulletin dealing with impervious papers. This bulletin will be followed by others dealing with the same subject. It is our hope that they will contribute to a better undersanding of the application of impervious papers in the military field. Russell Savage is handling the survey.

Dehydrated Foods

Special Technical Bulletin No. 1 describes the scope of Mr. Savage's contacts thus far and deals specifically with the field of dehydrated foods. In compiling information of dehydrated foods, we had access to some rather confidential production figures. On the basis of these figures, we were able to classify the foods into two groups, the first group involving foods which obviously could not be carried in paper, and the second group involving foods which either are or might be carried in paper, provided the "ideal" sheet is developed. A definition is given of the so-called "ideal" sheet. It should be borne in mind that we are referring merely to the impervious paper and not to the cartons or cases.

Using a factor of 1¼ pounds of paper to 10 pounds of food, it is interesting to observe that an "ideal" sheet might be required in amounts of from 40,000 to 60,000 tons annually. This estimate is purely tentative because it is based upon a rapidly changing picture. In our opinion, however, it is important for the industry to have both the qualitative and quantitative aspects of every development. In wartime, the issue of tonnage is entirely secondary. The most important thing is to solve a problem. Nevertheless, an awareness of tonnage enables the industry to orient its developmental and production facilities more intelligently.

There are quite a few places where the proper type of impervious paper could serve a military purpose. Some of these applications were enumerated in special bulletin No. 1. As others are isolated, they will be called to the attention of the industry.

In this regard, you may be interested in an arrangement we have with the Containers Division of WPB. A joint committee has been established. It meets every two weeks for the purpose of discussing container problems involving the application of special or new types of impervious papers. Our group is supposed to contribute information and suggestions regarding the papers, whereas the Container representatives are especially concerned with the applications of such papers to the construction or design of a container, and with all the problems related to that side of the picture.

Binder and Wrapping Twine

We have been very much interested in the field of binder and wrapping twine. Each year, the United States and Canada consume approximately 250,000,000 pounds of binders twine. Since this twine is used almost exclusively on farms for handling grain, corn, and other agricultural products, it is unquestionably an essential material. Normally, binders twine is made of manila or sisal. Manila is out and the resulting burden is too much for sisal to carry by itself. Some material must be found to relieve sisal of perhaps one third the total requirements or roughly 75,000,000 pounds or over 35,000 tons. One interesting possibility is the use of twisted paper. As you may know, twisted paper has only around 25% of the tensile strength of an equivalent weight of sisal. Curiously, however, the paper loses less of its strength upon knotting with the result that its knot strength is nearly 50% of that exhibited by sisal. A satisfactory application of twisted paper in this field will require good wet strength as well as certain other properties. We are working on the project with the Conservation Division of WPB and with the Cordage Operating Committee. The latter is gathering a complete technical and economic picture so that we may distribute this information to the pulp and paper industry as a target at which to shoot in its developmental work.

The field of wrapping twine is not as large from a tonnage standpoint. Its applications, however, are important. Normal requirements for wrapping twine will run around 60 million pounds per year. Deletion of unessential applications have reduced the annual requirements to around 25,000,000 or 30,000,000 pounds as in the case of binders twine, about one

third of this requirement should be filled by material other than sisal. Paper would appear to lend itself to those uses where elasticity is not necessary. Applications of wrapping twine have been extended to a certain degree by restrictions placed upon the use of baling wire. One possibility for paper wrapping twine that comes to mind is the bundling of newspapers for urban and rural delivery. We expect to have specifications and use requirements for distribution to the industry shortly.

Other Projects of the Section

There is not time to discuss other projects of the Section. They involve subjects as varied as garbage pails, paper vests, antitank mines, containers for flake caustic and alfalfa meal, substitutes for metal light reflectors, latex cups and basins, turpentine pans and gutters, helmet brims, raincapes, new map papers, incendiary bomb fins, hand grenades, first aid kits, practice bombs, oil containers, and papers for carrying a variety of greasy or volatile materials. It is interesting to observe that most types of paper and paperboard are involved in one way or another in these projects.

In its five months of operation, the Section has written over 2,000 letters and reports and has conferred with over 1,000 visitors. In this way it has maintained a fairly broad relationship with the industry. We have been conscious, however, of the need for an even broader contact with those in the field. No single group has a monopoly on ideas or inspiration and it is desirable to have the objectives of a development widely appreciated so that it will receive the attention of the entire industry. With this in mind, the Section is now issuing a general technical bulletin. Perhaps you have seen the first bulletin which appeared about ten days ago. Other bulletins will follow.

In addition to the general bulletin, the Section will issue, from time to time, special technical bulletins, dealing with specific subjects. The first special bulletin, which we referred to earlier, deals with impervious papers. On schedule are special bulletins relating to binders twine and wrapping twine. Others will appear as projects reach a point where special discussion of their progress is warranted.

In discussing the work of the War Products Development Section, we would like to make it clear that the Section does not take any credit for the accomplishments accumulated thus far or for the contributions still to be made. These are due to the ingenuity and cooperation of the paper industry itself. Our role has been confined essentially to the uncovering or clarification of certain applications for fiber. Successful development of these applications has been possible only through the efforts of the industry.

A bird's eye view of the part which paper is playing in the war cannot help but lead to the conclusion that the industry has performed brilliantly. For example, a little earlier we referred rather casually to the overseas shipping container. When one stops to think, however, of the condition which existed only a few months ago and then reflects upon the present status of this container, he is persuaded that the paperboard industry has contributed one of the real sagas of the war.

Prodigious quantities of ordnance and subsistence items are weaving their way from this country into all parts of the globe. It is necessary that these supplies reach their destination intact and unspoiled. Conditions are such that they cannot be handled gently. Often, containers will be unloaded by dumping into the surf. Here they may be tossed about for a day or two before collection. A satisfactory container, therefore, must not only have strength to meet normal handling, but it must also be able to withstand prolonged immersion in water and retain its shape and strength sufficiently during that period to endure heavy handling and abuse. Paperboard containers have never been subjected to such rigorous treatment and it was only natural that there were many sad stories of lost supplies around the middle of last year. The problem could not be solved by using wooden boxes exclusively, because lumber was critical and because it required appreciably more metal as well as greater shipping space. The objective, which seemed rather fantastic at the time, was to develop a paper box that would perform, in every regard, as satisfactorily as a wooden container. The concentrated efforts of the paperboard industry led to a successful conclusion of this almost impossible problem and today there are boxes having a dry burst (mullen) of over 750 pounds and, after prolonged immersion, a wet burst of over 500 pounds, as well as the ability to stand up under at least twelve drops on a concrete platform.

The application of various papers and paperboards to different food packages and cartons, has been discussed on many occasions. New developments have come along so rapidly that it is almost impossible to draw up a list without immediately being out of date. There are still many conversions to be made in this field. The amounts of metal which have been saved are enormous. So far as we know, no one has taken the time to estimate total savings. Everyone is too busy working on new savings, to bother to recapitulate. One coated box board plant is conserving around 11,000 tons of tin plate in only two of its new items. The total for the industry we are certain, would run into several hundreds of thousand tons.

The paper bag manufacturers have done an outstanding job in their substitution for burlap and metal drums and containers. Again, the score in this field has not been computed. Isolated examples can be selected. As an indication of what is going on, in Canada prior to 1942, ammonium nitrate was handled exclusively in metal drums. Last year a multiwall, valve-type bag was developed to replace the critical drum. As a result, steel is being conserved at the rate of approximately 7,000 tons annually.

Another example of conservation through multiwall sacks can be found in the calcium chloride industry. Here, it is estimated that roughly 7500 tons of metal are being saved annually. It is interesting to observe that, in many instances, these conversions show savings in labor as well as in metal.

In spite of the many fine things which have been done, the contacts of our Section convince us that there are still many opportunities for paper to be of service. One need only refer, for example, to statements which have been made by two ordnance districts in their discussion of a very successful application of paperboard to an ordnance problem. This application, incidentally, will save enough steel to build 300 tanks per month or considerably over 100,000 tons a year. The interesting comment, however, is that, and I am now quoting, "Engineers are just beginning to realize the potentialities of paper and woodbase materials."

Improvement of Electrical Circuit in the News Penetration Tester*

By D. D. Cameron[1] and W. C. Kenyon[1]

Abstract

The News penetration tester has been modified by the installation of a rheostat-potentiometer in the electrical circuit. This inexpensive modification improves reproducibility of results by rectifying differences in response characteristics of the individual photocells of the instrument.

Sizing is a term that is familiar to almost everyone in the paper industry, but, neverthless, is a term which is subject to many and varied interpretations. The most common interpretation is resistance to transudation of water *(1, 2, 3)*.

Sizing is used also as a term to imply resistance to transudation of liquids quite different in properties from water—e. g., colloidal solutions such as ink and blood. As might be expected, the correlation of transudation of water with transudation of colloidal solutions is not satisfactory.

In a series of tests, some correlation has been found between the values obtained for blood and ink transudation and the values for steak and liver tests but no correlation of these values with water transudation values was found. In these tests the testing medium was placed on the sample of paper, and the percent penetration was noted after 0.5, 1.5, 4, 8, 24, and 48 hours for the steak and liver tests, and after 5, 10, 15, 30, 60, 90, 120, and 180 minutes for the ink and blood tests.

Blood and Ink Tests

Figure 1 shows the correlation between the average of the steak and liver tests and the ink tests. Figure 2 shows the correlation curve for the blood penetration and meat tests. The lack of correlation noted between the meat test results and water transudation is illustrated by Fig. 3.

While the preceding observations are not complete and conclusive, they do show that the present tests based on water transudation do not give a satisfactory evaluation of sized papers for many of the uses to which they will be put. An ink test of some type offers a possibility of measuring sizing, where transudation of molecules of considerably larger dimensions than water is involved.

Of the various ink tests available, the News penetration tester formerly manufactured by Barss, Knoble, and Young, and at present by Testing Machines, Inc., seems to offer a promising approach to the determination of colloidal solution transudation

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Hercules Powder Company, Experiment Station, Wilmington, Del.

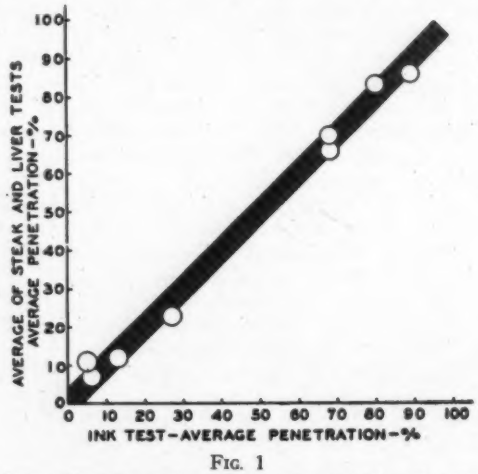

FIG. 1
Relation of Ink Penetration Data to Steak and Liver Test Data

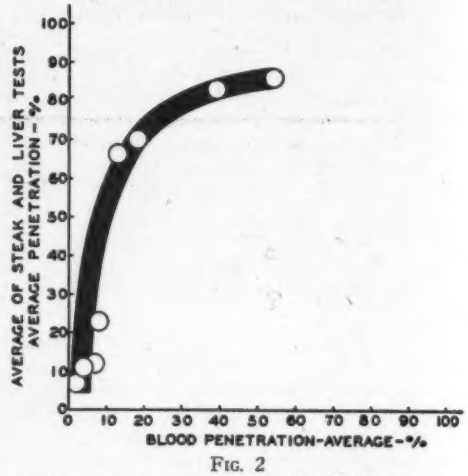

FIG. 2
Relation of Blood Test Data to Steak and Liver Test Data

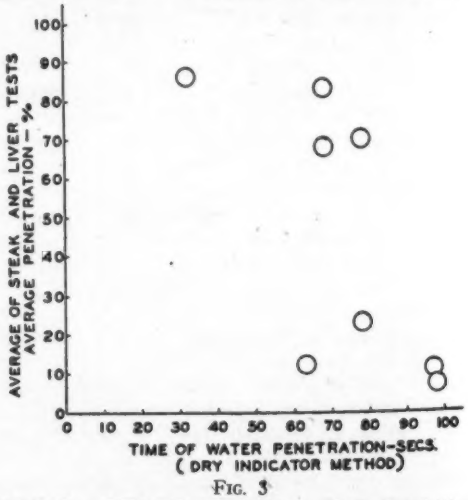
AVERAGE OF STEAK AND LIVER TESTS AVERAGE PENETRATION - %
TIME OF WATER PENETRATION - SECS. (DRY INDICATOR METHOD)
0 10 20 30 40 50 60 70 80 90 100

FIG. 3
Comparison of Water Penetration Data with Steak and Liver Test Data

by scientifically sound principles. This instrument was the subject of one of the instrumentation studies made by The Institute of Paper Chemistry *(4)*. In that study several limitations were pointed out, including the effects of color and opacity.

Deficiency of News Tester

It has been the experience of the Hercules Powder Company that results with the News penetration tester were nonreproducible, even though samples of closely matched color and opacity were used, and temperature and humidity were controlled. Two types of variation in the results were noted: (1) Random fluctuation in successive determinations on a given sample. (2) General increase or decrease, depending on the individual instrument, of values over a long-term period. The second type of variation fortunately was found amenable to correction or control.

Considering the News penetration tester structurally (Fig. 4), the principle of the instrument is to balance the output of two barrier-layer-type photocells upon which light falls from the same source, one beam of which is reflected from the sample, and the other from a movable plastic reflector. A neutral screen is then inserted in the latter beam to reduce its intensity to a known fraction of its original value. This unbalances the galvanometer. Ink is then brought into contact with the underside of the paper sample and the time is noted for the ink to penetrate the sample until the reflection of the sample is reduced sufficiently to bring the galvanometer back to balance again. This procedure gives a reproducible end point only when the two photocells have the same illumination-response characteristics.

A study was made to discover the cause of the general increase or decrease of values over a long period of time. It was found that the response characteristics of the two photocells in each of several instruments were considerably different. This allows unequal amounts of light falling on the two photocells to be judged equal. This is indicated by the fact that in at least two instruments checked

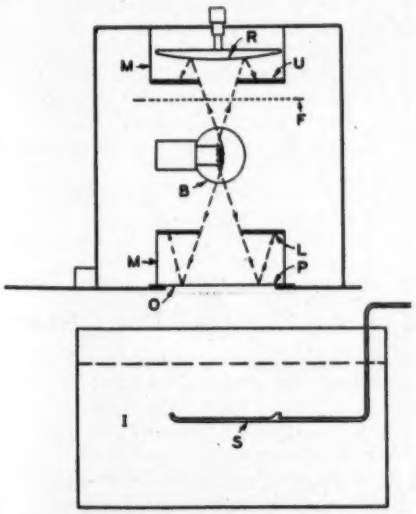

FIG. 4

Schematic Diagram of Optical System of News Penetration Tester. B—Bulb, U—Upper Photocell, L—Lower Photocell, MM—Cylindrical Mirror, R—Plastic Reflector, P—Paper Sample, F—Neutral Filter Screen, O—Test Opening, I—Ink, S—Ink Spoon

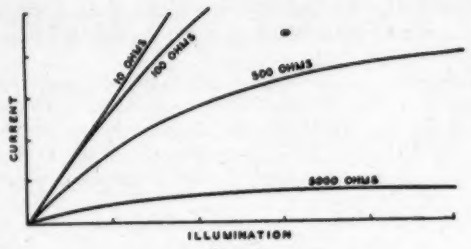

FIG. 5

Dependence of Current-Illumination Relation on External Resistance

by the authors, consistently different values were obtained when the two photocells were interchanged.

The two cells used in a given instrument may have the same general characteristics. However, the characteristics of one or both of these cells may vary considerably from a typical curve. The response characteristic is dependent upon the external resistance of the circuit. This is shown in Fig. 5 (manufacturer's data). Thus when there is a high external resistance (of the order of several hundred ohms) the response is far from linear. There is also a considerable variation in the response characteristics of individual cells, for a given external resistance.

Figure 6 shows what takes place in the above test if the response curves vary considerably. The probable difference in response curves has been exaggerated somewhat for purposes of illustration.

Suppose that Curve B represents the response curve for the upper photocell of the News penetration tester, and Curve A, the response of the lower cell. When the illumination of B is 100 units, an illumination of 50 units will produce the same current in A. Now, the filter screen having 80% transmission is introduced into the light beam striking B (the upper cell), and it will be seen that an illumination of 43 units will cause an equal current response in A (the lower cell). Thus instead of reducing the illumination from the sample to 80% of its original value, it has been cut to only 86% (43/50).

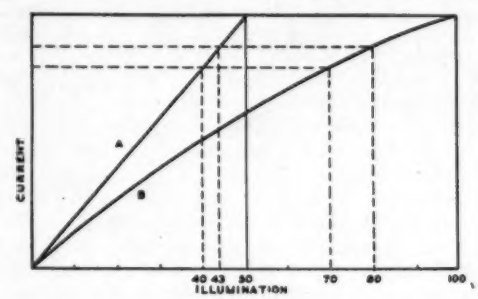

FIG. 6

Effect of Photocell Sensitivities on Illumination of Lower Photocell at Matched Current

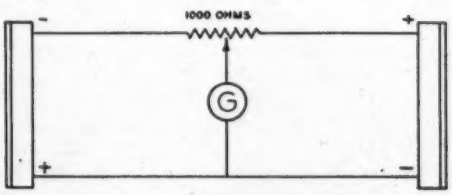

FIG. 7

Modified Circuit Allowing Adjustment to Equal Response from Each Photocell

Naturally, it will take less time for the ink to darken the sample to 86% of its original reflectance than to 80%.

Conversely, suppose that the cells are now interchanged, so that Curve A represents the upper cell and B the lower. When the illumination of 50 units is cut to 40 by the 80% transmission screen, an equal current will be produced in the lower cell, B, only when the illumination is cut to 70 units, or 70% of its original. This, of course, will take longer than to darken the sample to 80% of its original value.

Thus, in a given instrument, if considerably different values are consistently obtained for samples of the same paper when the photocells are interchanged, it may be concluded that the results in either case will not agree with those obtained with other instruments. Furthermore, if changes should take place in the relative sensitivity of the photocells, the results may not be consistent even for one instrument over a period of time.

Modification of Electrical Circuit

However, since, as can be seen from Fig. 5, it is possible to vary the response of the photocells by changing the external resistance, it is possible to modify the instrument to allow equal response from each photocell. This is done by the introduction of a rheostat-potentiometer as shown in Fig. 7.

Then by dividing this resistance suitably between the two halves of the circuit, the effective responses of two photocells can be made equivalent, although presumably neither will be linear.

A test for this condition of balance is as follows: The galvanometer is unbalanced when the screen is interposed between the light source and the plastic reflector. If, then, another screen having exactly the same transmission is inserted between the light source and the sample the galvanometer will return to zero when the photocell responses are equivalent.

In practice this amounts to the following procedure: First, balance the instrument as usual with no screens in the beam, using the movement of the plastic reflector to achieve this balance. Then insert the filter screen which is to be used to determine the end point in the usual manner. The galvanometer will now be unbalanced. *Then,* insert another screen having the same transmission as the first, between the light source and the lower photocell. If the galvanometer returns to balance, it can be assumed that the response of *both* photocells is the same and the true result will be obtained. If the galvanometer does not return to balance upon insertion of the second screen, the rheostat, shown in Fig. 7, is varied until upon repeating the above procedure, the galvanometer balances, when both screens are out of the beam and again when both screens are in the beam.

Four instruments have been equipped with a potentiometer-rheostat as shown in Fig. 7 in this laboratory, and tests with a number of samples indicate that, within the rather wide limits of experimental error at present associated with this test, all the instruments now give values which agree well.

The random fluctuation in successive determinations on a given sample previously mentioned apparently is due to factors of the sample—i. e., nonuniformity, from whatever cause—or the penetrant. No extensive study of the sheet factors responsible for nonuniformity of test results has yet been made, inasmuch as a close insight into this matter is expected from a concurrent research program, the results of which will be made known as soon as feasible. However, effort has been made to standardize the penetrant, and at present an ink prepared by the following formula is used:

Soluble Blue 2B Extra (National Aniline & Chemical Co.)	6.00 g.
Hydrochloric acid, conc.	6.00 ml.
Distilled water, 120° F.	250.00 ml.
Cool to 70° F., and add distilled water to make up to	950 ml.

ANALYSIS

Total Acidity, as HCl, determined by electrometric titration	0.3%
Transmission at 430 mμ determined at 100-1 dilution in a 1 cm. cell	81.0%

While it has not yet been shown that this ink is the most desirable penetrant with respect to pH, colloidal properties, etc., it does afford a standard penetrant free from the uncontrollable variables of ink from commercial sources.

The modification of the electrical circuit of the instrument is the first step in the standardization and development of a test for colloidal solution transudation. Other steps, of course, are necessary and include selecting a penetrant of proper characteristics and reducing the effect of sample color and opacity. Work on further standardization and development is in progress, and, it is felt, bids fair to offer a means of measuring certain sizing properties much more satisfactorily than they can be measured at present.

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2. TAPPI Standard T 433 m.
3. Van den Akker, J. A., Nolan, Philip, Dreshfield, A. C., and Heller, H. F., *Paper Trade J.* 109, No. 21:33-42 (Nov. 23, 1939); *Tech. Assoc. Papers* 23:564, 569-578 (1940).
4. *Paper Trade J.* 105, No. 26:35-42 (Dec. 23, 1937).

Air Conditioning Analysis

Air Conditioning Analysis with Psychromatic Charts and Tables by William Goodman of the Trane Company has recently been published by the Macmillan Company. It is a 455-page cloth-bound book containing 158 pages of tables. These make available for the first time psychometric properties of air for all barometric pressures from 22 to 32 inches. Step by step explanations, omitting none of the transitional steps needed for a thorough understanding of each topic are given. Graphical methods for the solution of air conditioning problems greatly clarify and simplify the work. Little mathematic background is required. The action of air in contact with water is discussed in detail, and an air-water chart is included which illustrates the exchanges of heat between air and water.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York, N. Y., for $6.00 per copy.

Buy Sales Rights of Rusta-Restor

The Johnston & Jennings Company, 864 Addison Road, Cleveland, Ohio, widely known manufacturer of Oceco tank fittings and Stowe industrial stokers, has purchased the exclusive manufacturing and sales rights of Rusta-Restor, a cathodic (i.e. electrical) process for preventing rusting of water tanks, piping and similar steel structures, which has been tested and approved by the American Water Works Association, Factory Mutual, and other Laboratories and is said to have won highest commendation from users in both the municipal and industrial fields.

Conservation in and by Chlorination*

By R. B. Martin[1]

Abstract

With considerable quantities of chlorine and ammonia having gone to war, the pulp and paper industry has been faced with the problem of making the best use of diminished supplies. Attention is drawn to the ways in which the industry's chlorine is increasing the production of war materials.

Upon reduction in bleaching, and the mixing of bleached with unbleached pulps to meet the established brightness ceilings, an added burden has been placed on slime control treatments. This has been due to increase in bacterial infection resulting from present day operating methods. In certain instances increase in chlorine usage for slime control has made possible greater reductions in chlorine used for bleaching.

An appeal is made for increase in efficiency of use of chlorine in slime control treatments, in an effort to make the most of the chlorine required for this purpose, as well as to conserve through eliminating wasteful misuse of chlorine. Efficient chlorination can play a part in conservation of more vitally needed materials, providing methods of application keep pace with changes in white water and mill systems.

Some foresight is called for in planning now for more highly competitive conditions that will exist at the end of the present emergency. At that time, well-planned slime control measures will better enable the mills to meet competition for quality of finished papers.

Curtailment of chlorine supply has been confined to bleaching and to the "luxury" uses of chlorine. It is recognized, however, that the chlorine industry is in better shape today to handle the needs of the pulp and paper industry than ever before. It is true that considerable quantities of chlorine are now doing essential war jobs in manufacturing processes that will in good part be continued after the war. The balance of the expanded chlorine production capacity will thereafter be again available, and will become a factor in the development of bleaching and refining operations in the pulp and paper mills.

There has been no curtailment of chlorine for such essential uses as the control of slime or the improvement in bacterial quality of food papers. On the contrary, increased uses are encouraged in those cases in which an improvement in production or quality will result. To some degree the ammonia situation is similar, except that anhydrous ammonia and aqua ammonia have been considered temporarily more critical, and some mills have been asked to convert to the use of ammonium sulphate. The costs, or uses of critical materials, that may be involved in the conversion are considered secondary to the temporary need of conserving the anhydrous ammonia for munitions processing. In some mills the temporary conversion is simple and operations can be modified to minimize waste of chlorine or ammonia, or loss of effective bacterial control.

Also important to the conservation program is the proper use of chlorine that will reduce power requirements of the individual mill, or will increase the useful life of paper machine clothing, of screen plates, of pumps, and of other mill equipment that now come under the critical-materials classification. Unfortunately, however, there is frequent failure to appreciate relative values, and an unwillingness to make effective use of pounds of a given critical material to conserve tons of the same, as well as other critical materials. This all too familiar situation is rapidly being corrected, and should ultimately result in a sounder concept of true conservation.

For convenience and timely reference purposes, it will be of value to condense and restate the importance of slime treatment in the pulp and paper industry *(1)*. The progressive mill looks upon water as one of its most important raw materials. Mill fresh water, infected with slime-forming microorganisms, will be the direct cause of sliming difficulties where this water is used either directly or through recirculation for (a) washing and sluicing in the pulp mill; (b) showers on knotters, screens and thickeners, deckers or wet machine; (c) furnishing and dumping of beaters; (d) dilution and consistency regulation; and (e) all screen and machine showers.

Upon reduction in bleaching, and the mixing of bleached with unbleached pulps to meet the established brightness ceilings, an added burden has been placed on slime control treatments. This has been due to increase in bacterial infection resulting from present day operating methods. In certain instances increase in chlorine usage for slime control has made possible greater reductions in chlorine used for bleaching.

Chlorination and "break-point" chlorination of both fresh and recirculated waters have performed satisfactorily in several hundred mills, with these well-recognized savings in mill operating costs, now doubly important in a conservation program:

Improvement in quality of the finished product by elimination of slime spots, pin holes, and objectionable odors.
Improved sheet formation through elimination of slime films on fibers and on paper machine wires.
Improved sizing and coloring through elimination of products of bacterial decomposition.
Saving in papermaking materials through elimination of decomposition losses, and through reduction in quantity of reworked stock, culls, and rejects.
Savings in heat, power, and materials through efficient operation of slime-free closed systems, and through elimination of necessity for frequent cleanups.
Reduced fuel requirement and improved production capacity through improved felt condition and more effective water removal.
Increased useful felt and wire life.
Reduced fuel and power costs through improved efficiency of condensers and low temperature heat exchangers, of screens and savealls, of filter plant equipment.
Elimination of direct and indirect bacterial corrosion, and control of hydrogen sulphide corrosion of machine wires, screen plates, pumps, piping, etc.

Perishable foods in increasing quantities are being wrapped and packaged in paper and paper products. Chlorination technique has kept pace in the paper mills, enabling the mills to meet the increasingly stringent requirements encountered in the manufacturing and handling of papers designed for these uses. In this work, break-point chlorination shows

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Member TAPPI; Industrial Division, Wallace & Tiernan Co., Inc., Newark, N. J.

May 6, 1943

considerable promise, in control of the more resistant spoilage organisms as well as a means of eliminating objectionable tastes, odors, and color characteristic of the usual mill water supply. As new requirements are established for microbiological quality of food papers, to take into consideration the new types of foods that are to be packaged, some mills will merit study to assure efficient use of established chlorination practices.

General Industrial Chlorination

It will be of interest to note in what way other industries are making use of chlorination technique developed largely in the paper industry and to forecast the benefits that will be derived from the broadened experience in chlorination of cooling and process waters in the power plants, oil refineries, gasoline plants, synthetic rubber plants, food conditioning, steel mills, munitions and war materials plants, and elsewhere. These treatments will be of particular interest to those pulp and paper men who are called upon to relieve the shortage of technical training in the war plants.

With only infrequent exception, all waters commonly used for cooling purposes carry infection of microorganisms capable of forming biological slime films on surfaces with which these waters come in contact, as recognized in pulp and paper operations. Incubation and multiplication of these slime-forming organisms are accelerated at the warmer water-contact surfaces of low-temperature heat exchangers, and steam or vapor condensers. Foreign materials become mechanically entrapped in the slime and in this way complicate and bulk the accumulation on the heat exchange surfaces, typical of biofouling. These deposits may in some cases be confused with scales, which frequently prove to be of organic origin. Speed of deposit characterizes organic slimes and scales, the actual speed of formation depending upon the nature of the biological infection, temperature, food materials present, and nature and condition of inorganic materials carried in solution or in suspension in the circulating-water.

Efficient operation of heat exchangers and condensers requires that the water contact surfaces be cleaned at frequent intervals, or preferably that they be kept clean by suitable preventive treatment. Where a deposit is allowed to collect, loss of efficiency is immediately apparent, reflected in lowered yield. or in increased fuel or power requirements. Periodic cleaning requires that the unit be out of service and therefore nonproductive. Preventive treatment must be used to maintain continuous operation at optimum efficiency.

Chlorination has established a satisfactory experience record as an effective preventive treatment. For twenty years chlorine has been used successfully in controlling these accumulations of biological slimes, and now an increasing number of types of plant operations are adopting chlorination as a standard method of maintaining production efficiency.

Of particular interest is the ability to control, through chlorination, bacterial corrosion or destruction of equipment and plant structures *(2)*. It has been shown that there exists a definite relationship between microbiological growth accumulation and coincidental differential cell development *(3)*. Resulting corrosion losses have in turn been brought under control by suitably planned chlorination.

Power Plants

In steam-electric generation, slimes on condenser tube surfaces result in loss of condenser vacuum, or increase in turbine back pressure. This means an increase in fuel requirement per unit of power generated. Also periodic machine outages for cleaning of condensers, generator air coolers, and auxiliaries are objectionable for several reasons, beyond the loss of generating capacity. This has become particularly important in mechanical difficulty in shutdown and startup of high-pressure or topping units. Fuel savings alone are sufficient to warrant investment in chlorination, the average plant showing a fuel factor of 7% per inch Hg increase in turbine back pressure.

As an example, a generating station of 100,000 kw. average output, allowing only 0.2 inch Hg increase in turbine backpressure before cleaning, will waste approximately $20,000 per year in fuel costs. A properly designed installation of chlorination equipment will result in a return of 50 to 125% per year on the investment in equipment. No plant, whether base-load or standby, can afford to overlook the potentialities of chlorination both in current operating costs as well as in design for added plant capacity.

Where circulating water volumes are large and pollutional loads heavy, the "intermittent" chlorination process provides the utmost economy in chemical costs *(4)*. In smaller or closed recirculated spray pond or cooling tower systems, continuous chlorination may prove more economical. Here air-borne slime infection must be controlled. An efficient spray pond or cooling tower becomes automatically an effective air scrubber. Thus the air benefits, at the expense of slime infection of the recirculated water. Each individual problem justifies careful study based on a background of operating experience.

When tidal waters are used for circulating-water supply, marine growths and higher biological forms may be equally as costly in plant operation and maintenance as are the more common microbiological slimes. The intermittent process in such cases is modified to bring under control those higher organisms or sea grasses causing the growth difficulty.

Oil Refineries and Gasoline Plants

Maintenance of high heat exchange efficiency and reduction of equipment outage and corrosion losses proves to be even more important in the manufacture of petroleum products *(5)*. Plant yield as well as product quality may both depend upon close control of process-stage temperatures and in turn upon ability to hold heat exchange performance at constant efficiency, without interference from rapid changes characteristic of slime-fouled cooling systems. Where performance is based on effective separation of volatile fractions lying close together on the temperature scale, chlorination has most readily demonstrated value of investment.

Where chlorination has been initiated on slime-fouled systems, equally immediate evidence of value is obtained through related reduction in required pumpage rates and proportionate reduction in power costs. As much as sixty per cent reduction in cooling water flows has been accomplished, demonstrating the possibility of expanding plant capacity without further capital expenditure for cooling tower and pumping equipment. On one refinery, the saving in pumping costs alone was greater in the first year than the cost of the chlorinator installation, and the

potential saving in capital expenditure was demonstrated to be five times the cost of the chlorine control equipment. Experience thus gained favorably influences future design, for economy in equipment and construction costs.

Compressors, Refrigeration, and Air Conditioning

As in the case of steam and vapor condensers, jacket cooling and operation of inter- and aftercoolers, as well as refrigerant condensers, must depend upon free access of cooling water to the heat exchange surfaces. Biofouling of these surfaces becomes evident in various ways. In compressor-station engines, varying head temperatures warn of impending head-cracking, valve warping, connecting rod troubles, high replacement costs, and equipment outage for cleaning and repair. In refrigerant compressors high head pressures directly reflect increased power costs and loss of efficieney. In air-conditioning heat exchangers the same efficiency losses occur and cleaning and outage factors prove to be of even greater importance. Here also chlorination has demonstrated the wisdom of planned preventive treatment. In one nationally famous air conditioning system the reduction in operating costs in each year exceed the costs of the chlorinating equipment, the investment return thus exceeding 100% per year.

Metals, Rubber, Chemicals, and War Production

Steel mills, brass plants, rubber producers and molders experience difficulty due to slime-fouling of water surfaces in roll and mold cooling, and continuous strip mills suffer loss of production and finish when high-pressure descaling jets become plugged with accumulations of organic slime and scale. Sections of such plants cannot be taken out of service for cleaning without disrupting the entire plant production. Producing mills also rely on chlorination to guarantee slime-free conditions and to minimize maintenance in tuyere cooling, in power generation, in turbo-blower operation, in bearing cooling, and in certain areas for air conditioning.

Trouble-free cooling waters contribute materially to low cost maintenance of utilities service and to overall production performance for the complex needs of the chemical plants and heavy equipment manufacturers. Many unusual instances have demonstrated the importance of chlorination in assuring absence of microbiological slimes and bacterial corrosion in vital production units.

Aluminum and magnesium producers, pressed for capacity, depend on chlorination to prevent shutdowns due to slimes in rectifier cooling systems and plant utilities services.

Experience gained in these industrial applications has been invaluable in furthering similar economies in ordnance and munitions plants. This work has included control of slime shut-downs, efficiency and yield losses, and disastrous bacterial corrosion attack in synthetic ammonia plants; nitric acid plants; smokeless and high explosives plants; metals processing, plane, shipbuilding, steel and heavy manufacturing operations, war chemicals plants, and synthetic rubber plants.

Raw and Processed Foods

Raw fruits and vegetables are particularly subject to spoilage infection. Citrus fruits, celery, melons, potatoes, etc., must be protected against spoilage losses in their travel from harvest, through storage, packing, and transportation to final market. Applications of proven chlorination practices have been widely adopted in protecting these raw foods.

Even in the irrigation waters, chlorination has been used to control the spread of infection such as fusarium cubense, which is the scourge of the banana growers.

In the processing of frozen fish and other frozen foods also, chlorination has played an important part in controlling bacterial infection and development of off-flavors and odors.

Shellfish producers rely on chlorination to eliminate pathogenic as well as spoilage organisms.

Meat packers have eliminated spotting and surface spoilage of hams by chlorination.

Dairies have eliminated butter spoilage and putrefaction by break-point chlorination technique.

Canneries chlorinate cooling-canal water to eliminate swells and bursts on the storage or retail shelves, due to infected cooling waters being drawn into the cans.

Flour mills chlorinate wheat washing and tempering waters to eliminate pig-pen odors and to improve uniformity of cleaning, tempering, and yield.

Malt manufacturers chlorinate to eliminate spoilage, off-flavors and to improve yield.

Yeast manufacturers rely on chlorination to control wild-yeast difficulties.

Beet sugar manufacturers find chlorination helpful in producing a low count finished sugar for the confectioner trade.

Cane sugar manufacturers chlorinate char wash waters to eliminate water as a source of contamination, as well as to provide chemical sterilization of the char beds. Where water is not available in sufficient quantities for cane and beet sugar operations, the refineries have chlorinated, clarified, and recirculated plant water. Without chlorination, fermentation and recontamination prevented this conservation of water.

Starch manufacturers use break-point chlorination to control tastes and odors and bacterial infection, originating in the plant water supplies.

Carbonated beverage plants eliminate cloudiness and product spoilage by break-point chlorination, and control reinfection by sterilizing bottles with chlorine-water solutions.

Process Industries

In industrial processing of all types, chlorination has been widely used to control at the source the organisms responsible for operating difficulties. As in the pulp and paper mills, the water is frequently used as a vehicle, to carry the action of the chlorine or chloramine to the points where reinfection is possible or occasionally unavoidable.

A glue manufacturer suffers degradation and loss due to spoilage organisms.

A leather manufacturer controls rotting of hides in soak vats by special chlorination technique.

A rayon pulp manufacturer chlorinates to eliminate discoloration of product due to iron and manganese in the plant supply. Rayon manufacturers and plastics producers maintain quality by chlorinating to eliminate filter plant difficulties, and to control regrowth or organic films in the filtered water lines.

Film manufacturers who must rely on efficient operation of air conditioning equipment utilize chlorination to eliminate sliming difficulties.

Textile mills chlorinate to eliminate carry-over of organic and inorganic dyes from the raw water source, and also to control spotting difficulty in bleach and dye houses, traced to microorganic growth accumulations in filtered water lines.

Woolen mills chlorinate to eliminate excessive maintenance and cleanup expense, due to slime accumulations in filter plant and process water lines.

A linoleum manufacturer chlorinates at felt mill to eliminate soft spots in the impregnated final product.

Oil well repressuring operations chlorinate to control slimes in high pressure piping and oil sands, to increase recovery of well capacity.

Steel mills chlorinate deep well waters to maintain carrying capacity of well discharge lines, and by back-flooding chlorinated water to the well screens and gravel pack, restore failing well production capacity. Former remedial measures involved removing each well from system for separate cleaning and maintenance.

Magnesium salt concentration operations utilize chlorination to eliminate discolorations caused by microbiological pigmentation. Similar action is noted where organisms are known to concentrate in their body sheaths certain specific metallic salts, and thus to concentrate these characteristic coloring and scaling materials.

Fish hatcheries use break-point chlorination control diseases of young fish due to bacterial infection normally present in the fresh water supply.

Chemical Processes-Chlorine Metering

The same principles of chlorine control have been extended to the larger process uses of chlorine and other corrosive gases.

This results from development in the manufacture of paper pulps, and particularly in the refining of rayon and similar pulps, where one or several stages of direct chlorination are utilized. Whether this reaction is carried out as a batch or as a continuous process step, the need for accurate and reliable rate control has been self-evident.

This is also true of the manufacture of bleaching and disinfecting solutions, as well as the manufacture of pharmaceuticals.

Chlorine-water solution of controlled strength is used to obtain a surface oxidation of rubber articles and rubberized fabrics.

Metering controls are regularly employed in the chlorination of both organics and inorganics in newer dehydrogenation and synthesis processes, entering into plastics and synthetic rubber operations.

Similar controls are used in chlorination of molten aluminum to eliminate blow holes in thin-section castings, and in special application in both hot and cold etching of strip steel.

With the end of the war, there will be a renewed competition for quality. Time may then be lacking for planned applications of the new developments in water uses and microbiological treatments, and it may therefore be well to plan now and perfect insofar as possible the steps to be followed in meeting the post-war competition for quality and for production.

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Method to Obtain Buoyancy of Paper Shipping Cases

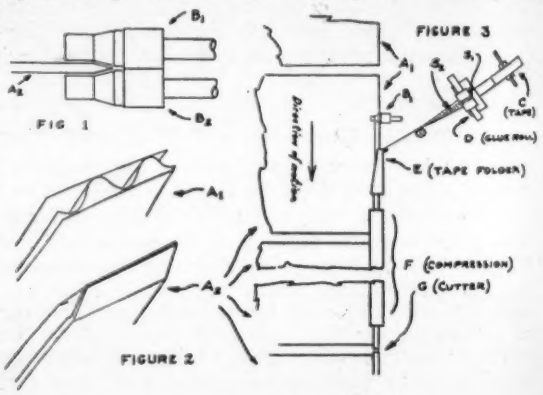
By T. J. Nelson [1]

The United States Army Quartermaster Corps wants a substitute for wood boxes which is equally as strong, is tougher, and is as resistant to water and high humidity as a nailed wooden box, with inner protection against water.

Various paper cases have been tested and found wanting in one or more qualities. Shipping cases of food and other subsistence stores may be unloaded from ships into the surf or onto wet beaches *(1)*.

A method is suggested to seal each corrugated sheet or case blank, along the two open edges of corrugations. The numerous channels for the entrance of water are thus closed off in every instance, except where slots are cut to form the case flaps, or where the paperboard is punctured in a local area. Either of these latter circumstances involve only a few channels in the respective areas.

The edge of the corrugated paper would be squeezed by rolls B_1 and B_2 (Fig. 1) reducing the



FIGS. 1, 2 and 3
Edge Sealer for Corrugated Boards to Keep Water or Dampness out of Flute Channels

edge appearance from that of A_1 to that of A_2 (Fig. 2). Immediately following this, a creped tape from roll C would be applied (Fig. 3) with an adhesive of suitable weather-resistant properties and in a quantity along the center line of the tape (S_1 on the glue roll and S_2 on the tape) to "plug" the crushed edge corrugations. The tape folder E would be similar or identical in style to that used to cap multiwall paper bags, textile cloth edges, and the like, when sewing such materials.

The adaptation of the above suggested method in a particular case-converting plant would obviously be influenced to a large degree by the plant's present equipment and method of operation. These factors would determine the point in the operating line most suitable for installing the set of two tape applicators (Fig. 3 shows one side or unit of the required pair) and the location type of cutter used as shown at point G. The facilities and operating time would determine whether a quick-setting thermoplastic adhesive would be required or whether a slower drying type of adhesive would suffice.

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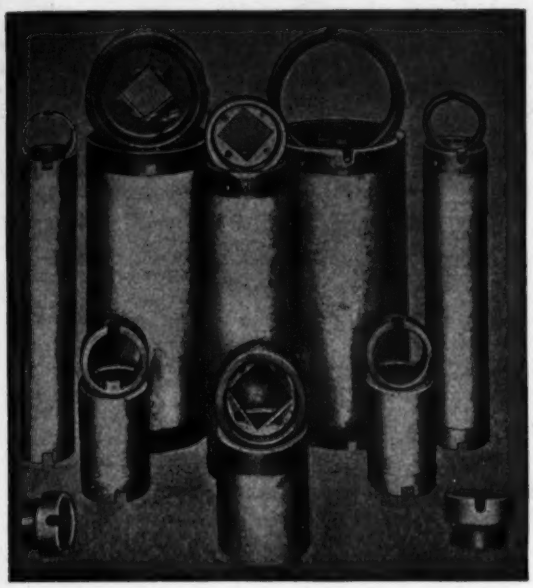
[1] Member TAPPI; Package Technologist, California & Hawaiian Sugar Refining Corp., San Francisco, Cal.



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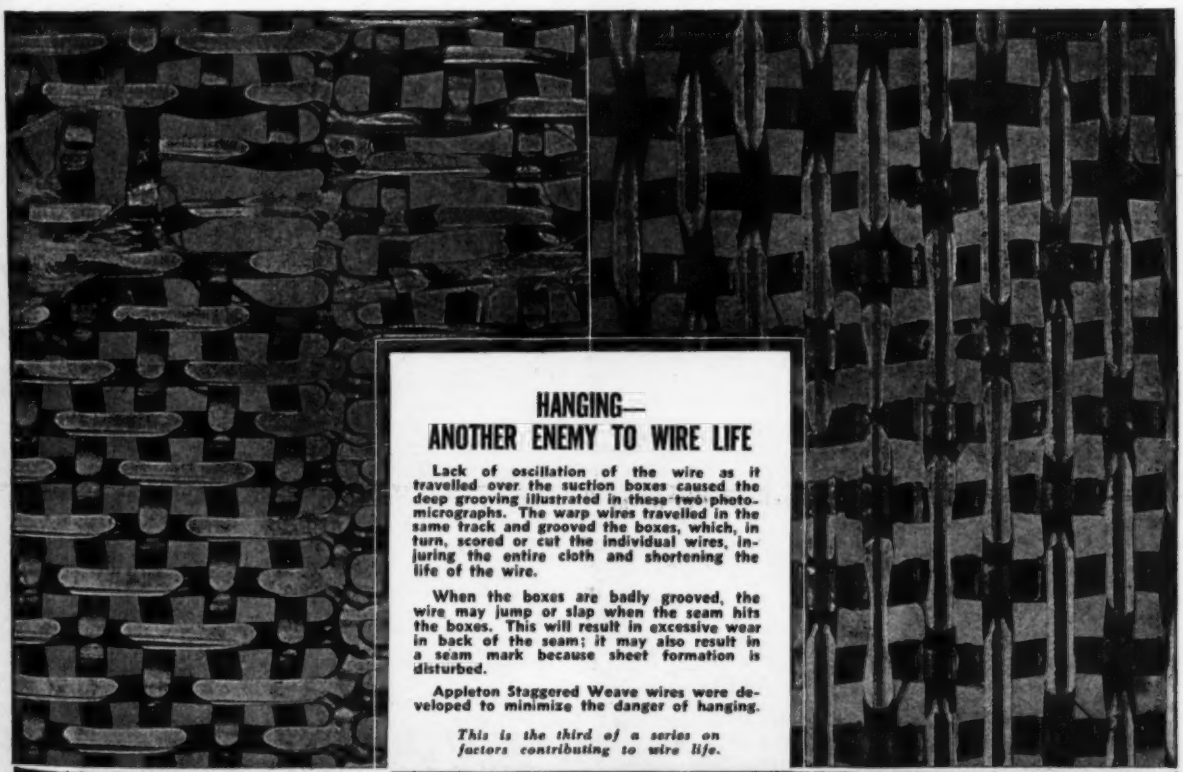

HANGING—
ANOTHER ENEMY TO WIRE LIFE

Lack of oscillation of the wire as it travelled over the suction boxes caused the deep grooving illustrated in these two photomicrographs. The warp wires travelled in the same track and grooved the boxes, which, in turn, scored or cut the individual wires, injuring the entire cloth and shortening the life of the wire.

When the boxes are badly grooved, the wire may jump or slap when the seam hits the boxes. This will result in excessive wear in back of the seam; it may also result in a seam mark because sheet formation is disturbed.

Appleton Staggered Weave wires were developed to minimize the danger of hanging.

This is the third of a series on factors contributing to wire life.

Appleton Wire Works, Inc. Appleton, Wis.

IDLE MILLS OF QUEBEC CO.

(Continued from page 7)

first increase in newsprint prices since 1938, he added, but since that time substantial increases had occurred in all the company's major cost items, including wood, coal and other materials, labor and transportation.

Reviewing the past year, Mr. Belnap stated that the corporation's mills operated at 60% of the official rate of capacity as compared with 70% in the preceding year. The production of other products continued at capacity. There has been a further decline in overseas sales because of limited shipping space, he added.

It has been necessary to defer the program inaugurated three years ago of improvement and modernization of the plant and equipment because of shortage of labor, technical staff and strict limitation in the use of materials. It has also been necessary, for the same reasons, to reduce maintenance to urgent requirements.

In the present circumstances with the future of all enterprise obscure, prudence dictates the necessity of a continuing policy of conserving liquid resources. "Last year I reported the destruction by fire of our Pembroke saw mill and that owing to the shortage of lumber the Timber Controller urged its reconstruction. This was completed last summer and placed in operation for the balance of the sawing season. This coming season it is expected to operate at full capacity."

"All of our surplus capacity in our maintenance machine shops have been utilized continuously throughout the year to assist in the war effort. This has been a very creditable performance and has relieved many critical bottle-necks of prime contractors and others for war materials."

Directors were re-elected and the financial statement adopted.

Technical Section Meets June 10

The summer meeting of the Technical Section of the Canadian Pulp and Paper Association will be held on June 10, 11 and 12, at the Seigneury Club, Montebello, P. Q. Group discussions will be held under the auspices of the various committees in the afternoon of June 10 and all day June 11. A golf tournament will be held on June 12 for the Section championship and the R. A. McInnis trophy, with a sweepstake in War Savings Stamps.

Paper Development within Navy Dept.

Nearly a year ago a Container Division was established within the Office of Procurement and Material of the Navy Department. This division was established to serve as a consultant to all of the naval bureaus as well as the Marine Corps and the Coast Guard, on matters pertaining to their varied container and packing problems. It is charged with the determination of Navy container policy, container development, and research, as well as education and field inspection service, insofar as containers are concerned. Furthermore, it is charged with coordination, conservation, standardization and cooperation of all Navy container activities with the War Department, the War Production Board, and other federal agencies. This division serves as the Navy representative in the coordination of all naval container activities with those of the Army and other War Procurement Agencies through the medium of the Container Coordinating Committee.

This division has been able in the past to make numerous recommendations changing many types of containers and packaging materials to paper and paper board materials, with the resultant savings of large quantities of wood and crating lumber. It has now become apparent that in the field of packaging or containers, paper is quite readily recognized, but that possibility for paper to do a job in other places ofttimes remains obscure because those dealing with a problem are not aware of the many things that can be done with paper or paper products. Consequently, the Navy has decided to employ a person with considerable technical training and practical experience in the paper industry and paper container field, who, in addition to his activities in the Container Division, will be constantly on the alert for the various places in which paper or paper board products might be employed to aid the naval war effort. It is felt that if a worthwhile educational job can be done in this field among the several bureaus of the Navy, it will be possible to resolve some of their materials problems by demonstrating what can be done by the use of various papers or paper boards.

To carry out this work in the Navy Department, F. G. Barber has been employed as Assistant to the Chief of the Container Division, and has been charged with the responsibility of finding all the places in which the Navy can use paper or paper board products to replace or supplement items or products presently made from more critical materials. Mr. Barber's background for this work consists in part of being a graduate of the Pulp and Paper School at Syracuse University, several years' experience in the technical and operational departments of Container Corporation of America at Philadelphia, as well as several years of sales-service work to the paper industry in connection with Stein, Hall & Co., Inc., of New York City. For the past year, Mr. Barber has been in Washington as a consultant to the Pulp and Paper Unit of the Office of Civilian Supply, War Production Board, and as a result is well acquainted with procedures and personnel with which it will be necessary to deal in his present capacity.

Since this work has only been undertaken in the last few weeks, there are few definite projects or problems as yet, but continual contact with the naval bureaus to ascertain their needs as well as intimate contact with the paper industry and paper converting industry is sure to bring many problems to light. This unit will also be in constant touch with the War Products Development Section of the War Production Board, but will welcome all ideas and suggestions from the paper industry that in their opinion may have a direct or singular application to some section or bureau of the Navy Department.

A. P. Duex Now With Chicago Paper Co.

The Chicago Paper Company has announced that A. P. Duex has recently become connected with the firm in a sales capacity. Mr. Duex, widely known in local paper circles, will represent Chicago Paper Company in the Wisconsin territory with offices at 72 Evans street in Oshkosh, Wis.

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of faithful service to the paper industry, we have temporarily ceased manufacturing new equipment and are devoting the greater part of our resources to the war effort. With the proper authority, however, you can still obtain replacements.

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The Hudson-Sharp Machine Company has devoted a period of 65 years to the development and manufacture of various types of machines used by manufacturers of paper and paper board products. During that period we have originated and improved many of the machines now used in this industry.

During 1942 and to date in 1943 we have turned our entire shop facilities to the manufacture of equipment for the Army and Navy. We have, during this period, increased the size of our plant and have added new tools and equipment.

We will continue to operate our plant for defense as long as the government requires our services but in the meantime we must, with industry in general, devote some attention and planning to post-war problems so that we may keep our present employees busy and provide places for men from our plant who are in the armed service.

We want to improve the machines we have manufactured previously. We want to add new and needed equipment to our line. We appreciate that men in the paper industry have a large store of ideas which they would like to have developed and placed in use.

To this end we offer our services. We will cooperate with any manufacturer desiring larger production of machines he has heretofore been manufacturing on a limited scale. We will take the inventions of those who have designed equipment for the paper and paper board trade, develop these plans and manufacture the machines for the inventor to sell, or will sell them through our own sales organization. We will meet with plant managers and machine operators who have ideas for improving our machines or for new machines with a view to cooperating with them in the development of their ideas.

We offer this service on a cooperative basis under arrangements which will be mutually and satisfactorily agreed upon. We invite your correspondence with a view to arranging a personal contact.

HUDSON-SHARP
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New York Paper and Pulp Market Review

Paper Market Active and Firm—WPB Announces Pulp Allocations —Supplies of Strong Unbleached Sulphite More Limited—Roofing Rags Strong at Ceiling Prices — Waste Paper Is More Active.

Office of the PAPER TRADE JOURNAL.
May 5, 1943.

A strong demand for many types of paper continues to maintain a firm wholesale market, with manpower and transportation problems complicating the difficulties of transacting civilian business, according to some of many reports received this week from manufacturers' representatives, jobbers, and general paper merchants.

The index of business activity for the week ended April 24 was unchanged at 138.0 from the previous week, compared with 132.9 for the corresponding week last year. The index of paper board production was 152.7, compared with 151.3 for the previous week, and with 153.7 for the corresponding week last year.

Paper production for the week ended April 24 was estimated at 89.9%, compared with 100.1% for 1942, with 97.8% for 1941, with 89.4% for 1940, and with 84.3% for the corresponding week for 1939.

Paper board production for the week ended April 24 was 97.0%, compared with 93.0% for 1942, with 84.0% for 1941, with 75.0% for 1940, and with 68.0% for the corresponding week for 1939.

Wood Pulp

The chemical pulp market is strong, with supplies of all bleached and unbleached grades tight. Supply of news grade sulphite is widely reported as more limited.

The May WPB order on pulp allocation states that although the supply of bleached sulphite was considered inadequate, it was sufficient to permit allocations on the basis of a 30-day inventory, as of June 1.

Strong unbleached sulphite supplies are less adequate and may become as scarce as bleached sulphite. May allocations were, therefore, reduced from a 45 to a 35-day inventory basis.

News grade, unbleached sulphite is in adequate supply. Allocations of soda pulp is continued on a 30-day inventory basis.

Northern bleached sulphate supplies are inadequate to meet demands on any inventory basis. Some substitution of southern for northern bleached sulphate was possible, but there is no prospect of improvement in the near future.

Groundwood supplies, except for the West Coast, continue inadequate. Additional supplies of wet groundwood pulp are believed to be available from Canadian mills.

Rags

Current mill buying of white cotton cuttings continues steady, with prices unchanged, below maximum levels. Colored cuttings are more active this week.

Roofing rags are firm under active mill buying and the prospect of more civilian use for roofing products. Prices are strong at maximum levels.

Old Rope and Bagging

Demand for old Manila rope continues greatly in excess of limited supplies, with all imported fibers scarce.

Scrap bagging trading activity continues limited, apparently awaiting stabilization of this market by the OPA on prices and the WPB on expected conservation of supplies.

Waste Paper

Current prices on No. 1 mixed paper and on folded news are firm, with mill buying a little under maximum prices. Book stock is stronger and is expected to increase under the new WPB order. This order will increase the use of de-inked waste paper in the manufacture of writing, envelope, tablet, and index grades. It amends General Limitation Order L-11, which was issued to conserve the use of chlorine. The chlorine supply situation has improved and the order, dated April 30, 1943, increases the brightness permissable in the use of waste paper for paper manufacturing to a standard of 74, from 70, which formerly prevailed.

Twine

The twine market is strong, with trade demand heavy. Supplies are limited for ordinary civilian use, with sisal being widely substituted for Manila in both cordage and twine.

Ask Bids on Waste Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 5, 1943—The Government Printing Office will receive bids on May 24 for a quantity of paper shavings, waste paper, etc., which may accumulate at the Printing Office during the fiscal year beginning July 1 next.

Among the estimated quantities which are expected to accumulate are the following:

550,000 pounds of white and colored shavings from blanks, etc.

1,000,000 pounds of white shavings from book and mimeograph papers.

550,000 pounds of white and colored shavings and clean waste.

230,000 pounds of newsprint and wood manila shavings and clean waste.

350,000 pounds of postal card bristol trimmings and clean waste.

1,000,000 pounds of white used monotype keyboard paper in rolls.

400,000 pounds of binders board, strawboard and chipboard cuttings.

5,500,000 pounds of paper wrappers from rolls and flat stock.

1,000,000 pounds of printed paper waste free from ground wood.

900,000 pounds of discarded publications.

J. R. Cryan to Manage Eastern Sales

J. R. Cryan has been appointed manager of eastern sales, effective May 1, 1943, of Fraser Industries, Inc., 420 Lexington avenue, New York. Mr. Cryan came with the Fraser Companies in 1930 and has been successively employed in the mill operations, technical control, as service engineer and the sales department.

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All three of the tapes mentioned above are finding increasing applications in war industries and Camachine 26-3, as illustrated, is the ideal slitting and roll winding machine for producing rolls of these tapes with clean cut edges.—Judged by such standards as speed, economy and convenience of operation, quantity and quality of finished rolls converted, also low maintenance cost, Camachine 26-3 is unsurpassed for this job. *Write for folder.*

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Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, May 5, 1943.

BLANC FIXE—Quotations on blanc fixe are firm and continue unchanged at prevailing market levels. The pulp is currently quoted at $40 per ton in barrels, at works; the powder is offered at $60 per ton, f.o.b., works. Demand reported fair for the week.

BLEACHING POWDER—Prices on bleaching powder are firm. Current demand reported good. Bleaching powder is currently quoted at $2.50 per 100 pounds, in drums, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 100 bags or more, 21 cents per pound; 20 bags, 21¼ cents per pound; less than 20 bags, 21¾ cents per pound, f.o.b., shipping point.

CAUSTIC SODA—Prices on caustic soda are reported unchanged. Demand for the current week is reported steady. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged. Demand reported fair for the current week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Government demand for war use continues heavy. Prices firm. Chlorine is currently quoted at from $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on some grades of rosin are higher for the current week. "G" gum rosin is currently quoted at $3.50 per 100 pounds in barrels, Savannah. "FF" wood rosin is currently quoted at $3.42 per 100 pounds in barrels, New York. Seventy per cent gum rosin size is currently quoted at $3.69 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand reported moderate for the current week. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand good. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch continue to be reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Supply more limited for the current week. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at from $1.75 to $1.85 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices of sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $16 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—
Roll, contract...*$54.00 @ —
Sheets ..... 62.00 " —
* OPA Maximum Price.

Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill
Superstandard Wrapping ....*$5.25 @ —
No. 1 Wrapping...*5.00 " —
Standard Wrapping*4.75 " —
Standard Bag.....*4.375 " —
* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots
White No. 1..... 1.12½" —
White No. 1 M. G. 1.10 " —
White No. 1½.... 1.00 " —
White No. 2..... .90 " —
Anti-Tarnish M.F.. 1.20 " —
Colored ..... — " —
Kraft ..... .95 " —
Manila ..... .90 " —

Toilet—1 M. Sheets—Per Case
Unbleached ..... 4.25 " —
Bleached ..... 5.70 " —
Unbl. Toilet, 1 M. 4.16 " —
Bleached Toilet... 5.70 " —

Paper Towels, Per Case—
Unbleached, Jr..... 2.60 " —
Bleached, Jr..... 3.20 " —

Manila—per cwt.—C. l. f. a.
No. 1 Jute.....11.25 @ —
No. 1 Manila Wrapping, 35 lb..... 6.00 " 6.25
No. 2 Manila Wrapping, 35 lb..... 5.75 " 6.00

Boards, per ton—
News .....*48.00 @ —
Chip .....*45.00 " —
Sgl. Mla. Ll. Chip*60.00 " —
White Pat. Coated*75.00 " —
Kraft Liners 50 lb.*63.00 " —
Binders Boards....84.00 " 116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.. "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1..	$10.55@$12.75	$11.70@$14.25
No. 2..	9.65 " 11.75	10.80 " 13.25
No. 3..	9.20 " 11.25	10.35 " 12.50
No. 4..	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65@$15.50
No. 2 Glossy Coated	12.40 " 14.00
No. 3 Glossy Coated	11.60 " 13.25
No. 4 Glossy Coated	11.15 " 12.75
No. 1 Antique (watermarked)	10.25 " 11.75
No. 2 Offset	9.60 " 11.00
A Grade E. F.	9.35 " 10.75
A Grade S. & S. C.	9.60 " 11.00
B Grade E. F.	8.85 " 10.25
B Grade S. & S. C.	9.10 " 10.50
C Grade E. F.	8.55 " 9.75
C Grade S. & S. C.	8.80 " 10.00
D Grade E. F.	8.25 " 9.50
D Grade S. & S. C.	8.50 " 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00
Unbl. Softwood Sulphite	65.00@ 66.00
Bl. Hardwood Sulphite	73.50
Unbl. Hardwood Sulphite	63.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	62.00
S. Semi-Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—
New White, No. 1*7.25 @ —
Silesias No. 1.....*5.75 " —
New Unbleached..*7.50 " —
Blue Overall.....*5.50 " —
Fancy .....*3.50 " —
Washables .....*3.00 " —
Bleachable Khaki Cuttings .....*4.25 " —
Unbleachable Khaki Cuttings .....*3.50 " —
* OPA Maximum Prices.

ENGLISH ECCO CLAYS CLAYS

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DEPENDABLE FELTS

TRADE MARK

The Waterbury Felt Co.
SKANEATELES FALLS, N. Y.

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.00	@	4.25
Wool Tares, light	4.25	"	4.50
Wool Tares, heavy	4.50	"	4.75
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	4.25	"	4.75
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	1.00	"	1.20

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old Kraft Corrugated Containers	1.50	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old Corrugated Containers	1.00	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	4.00
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.60	"	3.85
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	4.65	"	4.87½
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¼	"	.05
New White No 1.	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¾	"	.06¼
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
* Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—